

AMERICAN VETERINARY REVIEW

EDITED BY

Prof. A. LIAUTARD, M.D., V.M.,

*Member Central Society of Veterinary Medicine (Paris). Honorary Fellow Royal College
Veterinary Surgeons (England). Foreign Corresponding Member Academy
of Medicine, Bruxelles (Belgique).*

AND

Prof. ROBERT W. ELLIS, D.V.S.

WITH THE COLLABORATION OF

Prof. W. J. COATES, M.D., D.V.S., New York-
American Veterinary College.
OLAF SCHWABEKOPF, Veterinarian, 3d Cavalry,
U. S. Army, Fort Sam Houston, Texas.
Prof. W. L. WILLIAMS, V.S., New York State
Veterinary College, Ithaca, N. Y.
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And several others.

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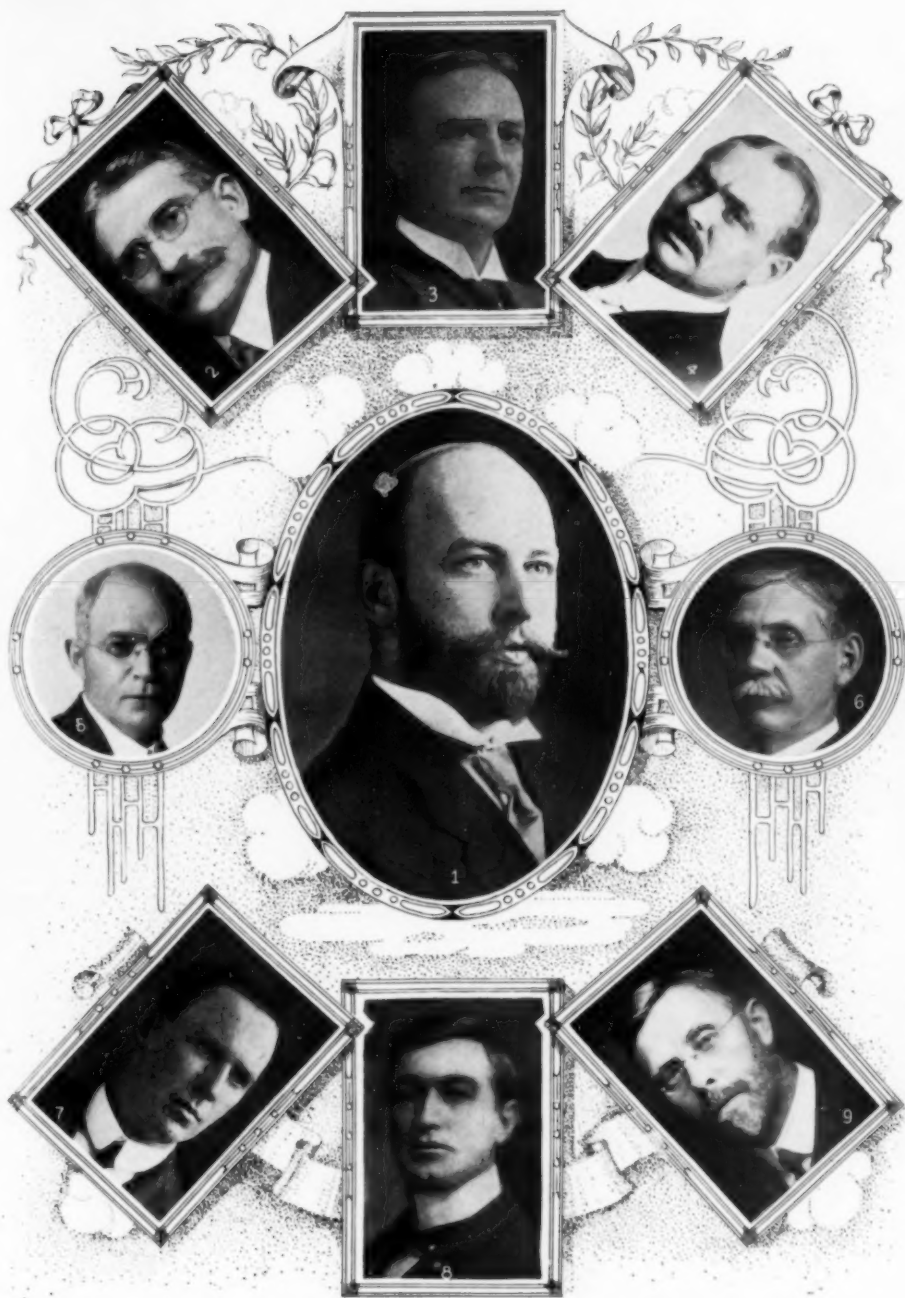
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European Exchanges, books for review and personal letters should be addressed to
A. LIAUTARD, M.D., V.M., 14 Avenue de l'Opera, Paris, France.



A. LIAUTARD.

Honorary President of the Fiftieth Anniversary Meeting of the American Veterinary Medical Association, New York, 1913.



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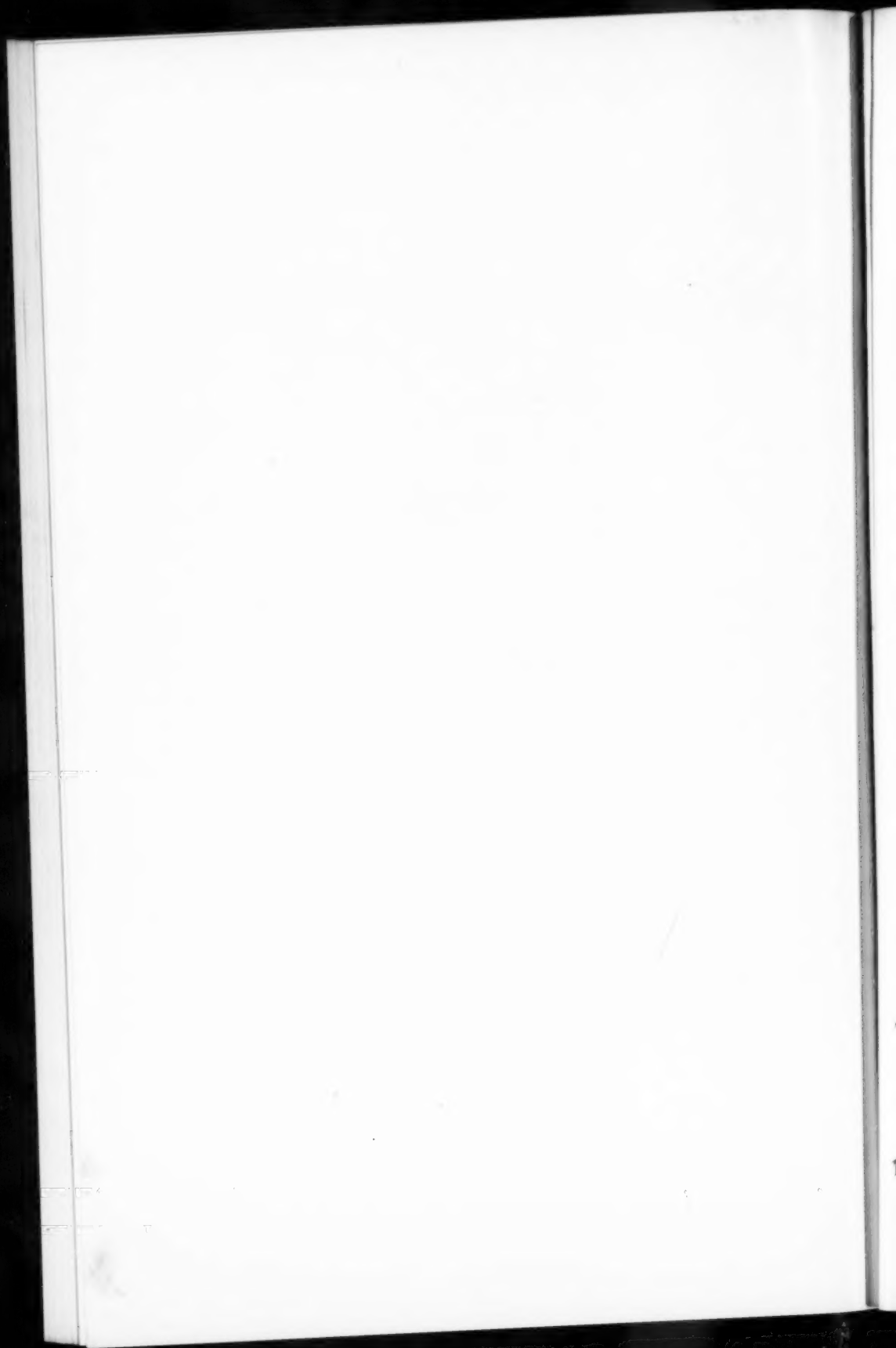
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AMERICAN VETERINARY REVIEW.

AUGUST, 1913.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, June 15, 1913.

TRYPANOSOMIASIS OF DOMESTIC ANIMALS.—Those affections are no doubt the most numerous and serious belonging to tropical pathology, and since 1880, when the first trypanosome, cause of *Surra*, was discovered by Evans, down to 1894, when that of *Nagana* was made known by Bruce, coming to later years, the publications and progresses made relating to trypanosomiasis have become enormous, and in such an extent that a résumé of the notions concerning these questions, as well as domestic animals are concerned, will prove of interest to those who may not have followed the progresses made. Professor Henry, the assistant to the learned occupant of the chair of zoology of Alfort, Professor Railliet, has published in the *Recueil* a concise review, from which I make the following extracts:

* * *

The most important trypanosomiasis known at present may be divided in four geographic groups.

1. *Tropical Asia.* Surra, agent the *Trypanosome Evansi*, attacks equines and camelidae of India, Bombay, Birmania, South of China, French Indo-China, Malaysian States, Sumatra, Java, Philippines.

Bovines and elephants may also become diseased, but they generally resist better than horses. Dogs take a more serious affection.

Besides Surra, there must also be mentioned a trypanosomiasis of the horses of Annam, produced by the *Tryp. Annamensis* recognized lately by Laveran.

2. *Intertropical Africa.* It is the country of trypanosomiasis, that of the glossinae or Tsetse flies.

Nagana has for its agent the *Try. Brucci*, discovered by Bruce in 1894, affects specially equines and bovines, and seems to be limited to oriental Africa.

Under the name of Nagana other diseases have been designated as having been due to the bites of Tsetse flies; recent studies have distinguished them, for instance, the disease of the horses of Gambia due to *Tryp. Dimorphon*; a trypanosomiasis of bovines and camels of Congo, due to *Tryp. Congolense*; *Souma* of bovines and equines of oriental Africa, due to *Tryp. Casalboui*; the *baleri* of the equines of occidental Africa, due to *Tryp. pecandi*, a trypanosomiasis of equines and bovines of Togoland, due to *Tryp. Togolensis*.

3. *North Africa and Mediterranean Coasts.* *Douiine*, with its peculiar characters, transmitted by coit, due to *Tryp. equiperdum*. The *tahagu* of equines, the *el-debab* of camels are also observed, different from douiine and its agent, the *Tryp. Soudanensis*. In Mauritania and in the region of Tombuctoo, there is the *mbori* of dromadaries, due to different insects than the glossinae, and which seems to be but a variety of surra.

4. *Meridional and Central America.* The *mal de Caderas*, caused by the *Tryp. equinum*, found in the blood of diseased horses of Argentine, Uruguay, Paraguay and Bolivia.

In 1905, the *pestu boba* or *desrengadera* of equines was dis-

covered in 1905 in Venezuela, caused by *Tryp. Venezuelensis*, and latterly the *murrina* of equines by *Tryp. hippicum*.

* * *

SYMPTOMATOLOGY.—Generally speaking, the whole of the symptoms are nearly always the same, but the chain of manifestations varies so little that it is almost impossible to indicate with certainty what virus is acting.

All domestic mammalia can be affected, with different severity however. Bovines and especially horses are those where the disease is most fatal.

According to its severity, three forms of attacks are recognized—one *acute*, fatal; one *subacute*, rapid in appearance and development; one *slow or chronic*, often mild.

Acute form is the most ordinary and presents three periods in its symptoms—incubation period, that of febrile accesses and that of cachexia. *Incubation* varies from a few days to one or two weeks, rarely one month. The animal has lost its ordinary ambition, is lazy and dull to its work. When mounted, he often manifests weakness of the back.

Febrile period. This is characterized by fever, dermatosis, oedemas, ocular manifestations.

The fever comes on suddenly. Temperature rises to 40° and 41°. There is loss of appetite, stupefaction, dyspnea. After variable duration of a few hours to a few days, all these disappear, to return after a length of time varying from one to six days.

DERMATOSIS.—Often cutaneous eruptions are observed, more commonly as papulae developed on the head, neck, shoulder, back and croup. These are covered with crusts, which, after their falling off, leave a small superficial sore. Those of douine are characteristic. Of various sizes, their duration also varies, disappearing after 24 hours, or again lasting 5 or 6 days.

OEDEMAS.—They are very common. Hard, painless and

giving by punctures serosity, in which trypanosomes are abundant, they take place in the extremities of the legs, under the chest, the abdomen, genital organs of males, udder of females. They are sometimes very large in nagana and surra. They may also disappear and return in the course of the disease, like the febrile condition does.

OCULAR SYMPTOMS.—Petechiae are observed on the conjunctivae, often very large, they may be sufficient to justify suspicion of an incubative or febrile stage of trypanosomiasis. The eye is sunken in the orbit, cornea infiltrated and milky, tears abundant, flowing on the face.

PERIOD OF CACHEXIA.—Last stage characterized by anemia and general cachexia. The first is manifested by palor of the mucosa. Loss of flesh is contrasted with appetite good and even at times increased. Muscular masses are so to speak melted away, the bones are projecting under the skin which is covered with sores. Back is arched, abdomen retracted. Gait is staggering, almost paralytic, the animal drops, and death occurs then more by cachexia than by the presence of the parasites, which have entirely disappeared. Pregnant females generally abort during the disease.

SUBACUTE FORM.—All the above symptoms appear rapidly. Short period of incubation, high fever, alarming symptoms from the start, no arrest between the febrile accesses; death takes place at times in the first hours of the disease, or again after a few days, resulting from congestive phenomena or rapid cachexia.

CHRONIC FORM.—Observed in horses in good condition and well acclimatized. Incubative stage scarcely detectable. Febrile accesses are very mild. Œdemas may come, but do not remain. Anemia and cachexia go on slowly, but remain rebellious. Death may take place after 6 or 12 months by complete exhaustion, but most ordinarily animals resist and get well, having generally gained immunity from the species of trypanosomes by which they have suffered.

PATHOLOGICAL ANATOMY.—The lesions of the cadavers have nothing specific; they vary according to the rapidity of the death. If it comes quick or during an acute period, all the ordinary lesions of infections are found. If it takes place only after a long period of cachexia, all the lesions of such are present.

DIAGNOSIS.—Generally the series of manifestations is sufficient for suspicion of trypanosomiasis; but the proof of it is in the detection of the trypanosome, which is easily detected when it is present, with magnifying power of 3 to 400 diameters and can be seen in the blood, with its quick movements, which it communicates to the hematics. The parasites multiply rarely in a progressive manner to become very numerous towards death. Their multiplication takes place by successive rushes, separated by intervals when they disappear almost entirely from the blood. Difficult to find in bovines, sheep and goats, with a single examination of the blood, they are easily detected in horses and in dogs. They are in some cases, as in dourine for instance, more numerous in lymph or fluid from puncture of the œdemas.

PROPHYLAXY.—Recovery from a first attack grants immunity. Hence the indications to immunize animals in conferring them a mild form of disease. Unfortunately attenuated viruses have so far given no serious results. Experiments with sera or drugs have had no success either. Measures of sanitary police are indicated and must vary according to the countries being free or contaminated.

For the first prevent the formation of center of infection. Forbid as much as possible the importation of animals from infected regions; closely watch those which will be imported for at least a month and have their blood repeatedly examined. All diseased animals shall be properly destroyed and their cadavers protected from contact with insects.

For the second, destroy as much as possible the agents of inoculation, or avoid the dangers by protection of the animals, regulating the traveling and bearing in mind that the Tsetse flies do not bite during night, but only during the day.

TREATMENT OF TRYPANOSOMIASIS.—*Serotherapy* has been

and is yet under consideration; but experiments are not yet concluded; some seras have given good results.

Radiotherapy.—No appreciable results obtained.

Chimiotherapy.—The substances experimented with are arsenicals, antimonials, colors of benzidine, and those of the triphenylmethane.

Arsenicals.—The curative effects of arsenious acid can no longer be denied; but it cannot be employed on account of the local accidents following the subcutaneous injections and the toxic doses in which it must be used.

Atoxyl is superior, being less toxic. It is well supported in subcutaneous injections. In doses of 1 to 5 grams it is at present the best product to have the trypanosomes disappear from the blood. Unfortunately, as they will return after a short time, the injections have to be renewed—and this is not without danger.

Antimonials.—The various emetics have a rapid action on trypanosomes, but, being poorly supported by the stomach, have to be used by intravenous injections.

Colors of Benzidine.—*Trypanred* is the most important agent of this series; it is particularly active in some trypanosomiasis, but its practical application is not yet sufficiently established.

Colors of Triphenylmethane.—A curative action exists, but is rather limited—on account of their irritating properties prevent their being used subcutaneously.

As trypanosomes become easily accustomed to one drug, it is necessary to resort to a mixed method of treatment, associating two forms alternately or combined according to their more or less active action—for instance, atoxyl and colors of benzidine, atoxyl and emetic, or again atoxyl and biiodide of mercury."

* * *

UMBILICAL AND VENTRAL HERNIA.—In the *Clinica Veterinaria* Prof. D. Bernardini has published a communication on an

important modification on the radical treatment of those lesions.

The surgical treatment, which is superior to all, is the suture of the hernial ring. Anyhow, this operation is the only one which is possible with large hernias, and in the cases where the other methods have failed and in those where there are adhesions between the viscera and the internal surface of the sac. However, the operation performed according to the modern classical method offers serious dangers—danger of peritoneal infection, of eventration, which cannot be avoided, except by most minutious and careful manipulations.

Prof. Bernardini proposes a method, radical in its results, which eliminates all the dangers and makes the operation practicable by all; it consists in applying to the surgical treatment of umbilical and ventral hernias, the method used in human surgery, the extra-peritoneal. The principle of the operation is to avoid the opening of the peritoneal serus membrane in pushing back in mass, in the abdominal cavity, the protruding viscera, and the fibro-serous envelope of the sac.

The contention is made afterwards by the ordinary means at hand. The dorsal position is strictly necessary, though not always very useful, especially when anesthesia is resorted to. The field of operation is prepared, skin shaved, washed with alcohol and painted with tincture of iodine. The operated field surrounding is protected with boiled cloth.

First step. Following the longitudinal direction of the hernia, an incision is made involving only the skin, and on the central half of the tumor. The subcutaneous tissue being exposed, with the fingers it is lacerated so as to separate entirely the hernial sac from the skin. When the internal sac has not been injured by the bistoury, the fibrous envelope raised internally by the peritoneum, offers sufficient resistance to not give way when the intra-abdominal pushing of the tumor is made. The dissection of the sac, as far as its base, is thoroughly completed, so as to reach the borders of the hernial sac and in pushing the finger between the neck of the hernia and the ring, the adhesions, which hold the sac on the internal face of the wall, are torn away.

Second Step. The hernial sac, being entirely free, it is pushed back with its contents through the ring. If it is big and the ring too narrow, a slight twisting will permit its return. By this simple manipulation the reduction is obtained, the sac is in the abdomen, and the edges of the ring are exposed without having open the peritoneal cavity.

Third Step. Suture of the ring. If the diameter of the ring is not more than 3 or 4 centimeters, the introduction of two or three fingers are sufficient to prevent the return or evagination of the sac, and at the same time they serve as guides to the needle to avoid pricking of the sac. If the ring is too large, the sac is immobilized by pads of gauze; stitches are then applied through the edges of the ring and the skin, without attention being paid to the cutaneous incision, whose edges are regularized afterwards.

When all the stitches are made, the excess of the borders of the skin is cut off and the sutures completed. If the ring is very wide, a few of the sutures are closed before the gauze is taken off. Tincture of iodine is coated over the wound. After 7 or 8 days the sutures are removed. Recovery is complete in 10 days.

* * *

NEW AGENT IN OVINE VERMINOUS PNEUMONIA.—So often and for such a long time, verminous pneumonia of sheep has been the object of scientific communications that its etiology ought to be known in all its details. Indeed, said Prof. Marotel in a meeting of the Société des Sciences Veterinaires already sixty years ago, the *Synthetocaulus rufescens* was described as the agent of the disease. Later other parasites were added to it, the *Synthetocaulus capillaris*, the *S. unciphorus* and *S. cercatus*. Recently a new Strongylida has been observed by the professor, which is very evidently different from the others. Its morphological characters differentiate it from the other species of the same gender by its extreme small size, its straight and unequal

spiculæ, the enormous size of its gubernaculum, which contrast much with the reduction of the accessory organs. It is not difficult to find it and is almost constantly present. It is located in the hepatized lung tissue, in the polygonal and greyish centers of lobular pneumonia. A tearing of these centers made under the microscope with a magnifying power of 20-40 degrees will reveal its presence with eggs and embryos and also adult worms belonging to the species *S. capillaris* and *S. linearis*. But as the worm is very delicate, it is more difficult to obtain an entire parasite, except in lungs from two to four years old, a little putrified and soft.

In his communication Prof. Marotel relates the observations he has made of the distribution and action of the various agents of verminous broncho-pneumonia of sheep.

"The *Dictyocaulus filaria* is located in the bronchia and causes bronchitis; the *Synthetocaulus rufesceus*, *S. unciphorus* and *S. ocreatus* locate in the small bronchia and give rise to capillary bronchitis; finally the *S. capillaris* and *S. linearis* live in the pulmonary parenchyma, the alveoli and the vesiculæ where they give rise to lesions of lobular pneumonia. Besides, the *S. capillaris* gives rise to granular or pulmonary tubercles."

* * *

BIBLIOGRAPHY.—The question of the control of tuberculosis among animals is one which occupies the attention of veterinary and sanitary pathologists almost as much as all the other various points connected with that terrible scourge.

I have received lately two books on the subject, which peculiarly came to me the same day, although from far apart countries, one from Germany, the other from the U. S. A.

The first one, published by Richard Schoetz, of Berlin, is from Dr. R. von Ostertag, private governmental council, director of the veterinary section of the Health Imperial Bureau of Berlin. It is a most important volume of nearly 600 pages and is illustrated with 88 figures of valuable interest.

Die Bekämpfung der Tuberkulose des Rindes, mit besonderer Berücksichtigung der klinischen und bakteriologischen Feststellung ("The Fight Against Bovine Tuberculosis, with Peculiar Considerations on the Clinical and Bacteriological Diagnosis") is dedicated to Prof. Bang, of Copenhagen, the father of the methodic struggle against bovine tuberculosis.

In the work of Dr. von Ostertag everything that relates to the subject has been brought together. Question of constant actuality at present, this control was to find in the doctor a most powerful advocate, and to secure his points the author has considered the serious signification of the presence of the disease, the possibility and the necessity to fight it, the parts that are played by the various forms of tuberculosis, of its spreading when open lesions exist. He has considered the various modes of diagnosis, the clinical as well as the bacteriological, and has concluded by the presentation of the measures now taken in Germany.

This work of the learned doctor will no doubt be of immense value not only in Germany but in all countries where the struggle against tuberculosis is to be organized. It will prove also for veterinarians, who are occupied in the fight, a superior guide, which will permit them to make a positive and early diagnosis, and assist them in the application of the modern measures that will be demanded by the presence of the disease.

* * *

The second book on the subject that I have, is from Doctor Veranus A. Moore, the learned director of the New York State Veterinary College at Ithaca, and professor of comparative pathology, bacteriology and meat inspection.

Bovine Tuberculosis and Its Control, published by Carpenter & Co., of Ithaca, is of less magnitude, as far as size only, than the German work; it covers but 134 pages.

At first we have a handsome portrait of Dr. R. Koch, the

discoverer of the microbe of tuberculosis, and then comes a dedication to "those who are actively interested in the eradication of bovine tuberculosis."

In the preface, Dr. Moore tells us that "it seemed for those who are intelligently working to eradicate this scourge, benefit would be derived from bringing together the results of the more important investigations on the nature, diagnosis and various methods for the control of this disease." And it is no doubt to comply with this kind of suggestion that the eleven chapters of the work have been written. The history of tuberculosis, its distribution, economic and sanitary importance, its cause, its nature and changes produced in the tissues, the symptoms, methods of dissemination, diagnosis in cattle, tuberculin and its use, physical examination in detecting it in cattle, immunization, control. Those are completed by an appendix, the report of the Internal Commission. At the end of the work, there are thirty illustrations, very handsomely made and certainly most correct.

These two works on the same subject present to the reader lists of the publications that the question of bovine tuberculosis and control has already suggested. In the German work the literature on tuberculosis is presented and covers no less than 118 pages—with names and countries of the different authors.

A. L.

NEW YORK OLD AND NEW.

NEW YORK OLD AND NEW is the caption we have given to a little story, touching in the briefest possible manner on some of the contrasting conditions that exist in the great city that is to celebrate the fiftieth anniversary of the American Veterinary Medical Association during the first week of next month. Perhaps *modern* and *primitive* might have been more appropriate than *old* and *new*, as the most primitive conditions depicted here exist to-day, in the same city, and not far distant from the most modern. For example, the Woolworth Building, the tallest

building in the world, stands on the same thoroughfare as the Astor House, separated from it by but a few feet, the width of



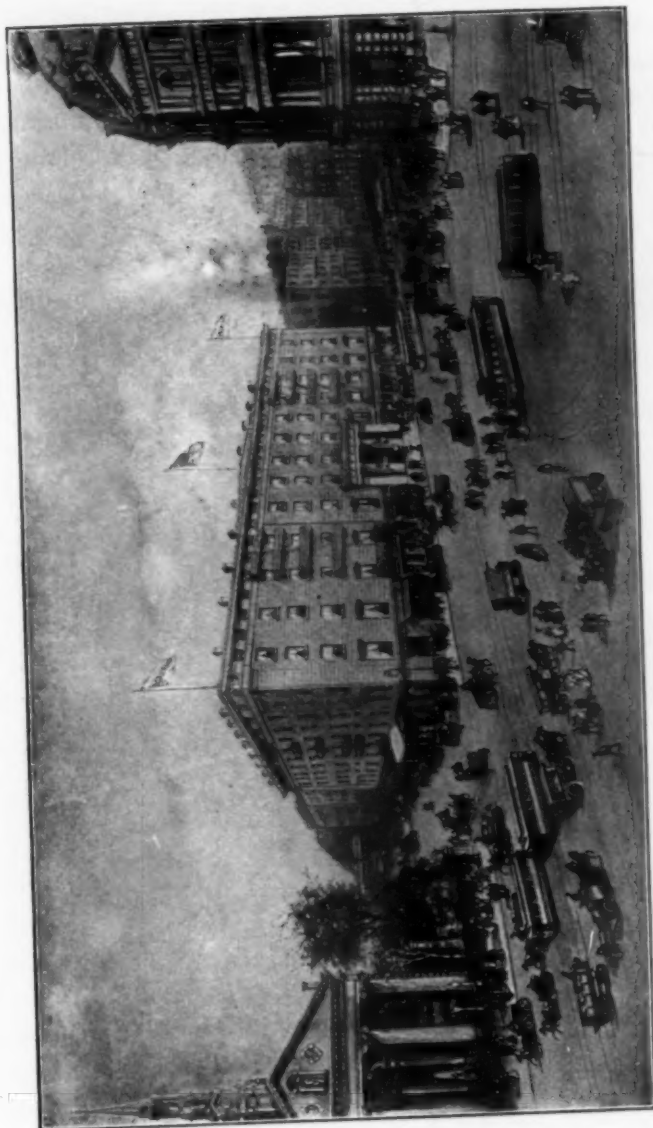
A Refreshing Drink.

Barclay street; and the old horse-cars can be seen to-day, in considerable numbers, crossing and running on, the tracks of the



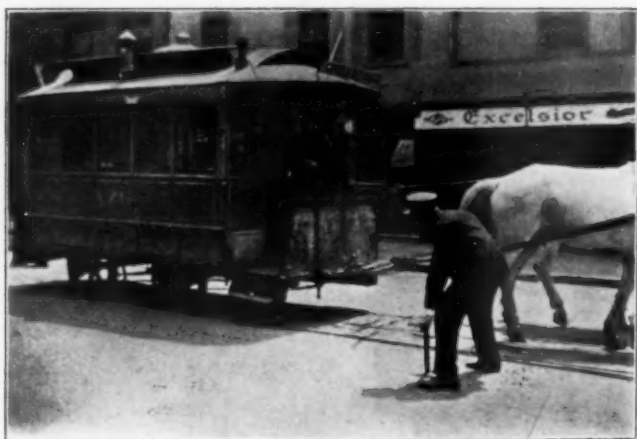
Going Over the Route.

cars of the most modern make, and latest modes of traction; running under the elevated and over the subway systems. The pictures from which the cuts of the cars were



Astor House, in Which the United States Veterinary Medical Association Was Organized on the 9th of June, 1863.

made are not souvenirs of olden days, but were taken right in the business thoroughfares by us, on the 12th of July, 1913. That our visitors may anticipate the more fully the contrasting primitive and modern conditions that they are to find in this great city, let us compare some of them. The primitive and modern modes of city traffic being familiar to all, we will not weary our readers by dwelling upon them, but pass to the buildings here illustrated. Let us first look at the Astor House, the cornerstone of which was laid in 1834, 79 years ago; 29 years before the organization of the United States Veterinary Medical Association within its walls. The cornerstone of that old hostelry was laid on the 4th of July, 1834, at 6 a. m., in the presence of about a hundred spectators. A box was deposited beneath the stone with a silver tablet in it; and when the old building is taken down to be replaced by a more modern struc-



Throwing the Switch.

ture, as it will be in the near future, if time has not destroyed it, the following inscription upon it will be read by the present generation: "Cornerstone of the Park Hotel. Laid the 4th of July, 1834. The hotel to be erected by John Jacob Astor. Builders, Philetus H. Woodruff, Peter Storms, Campbell and Adams. Superintendents, Isaiah Rogers and Wm. W. Burwick. Archi-

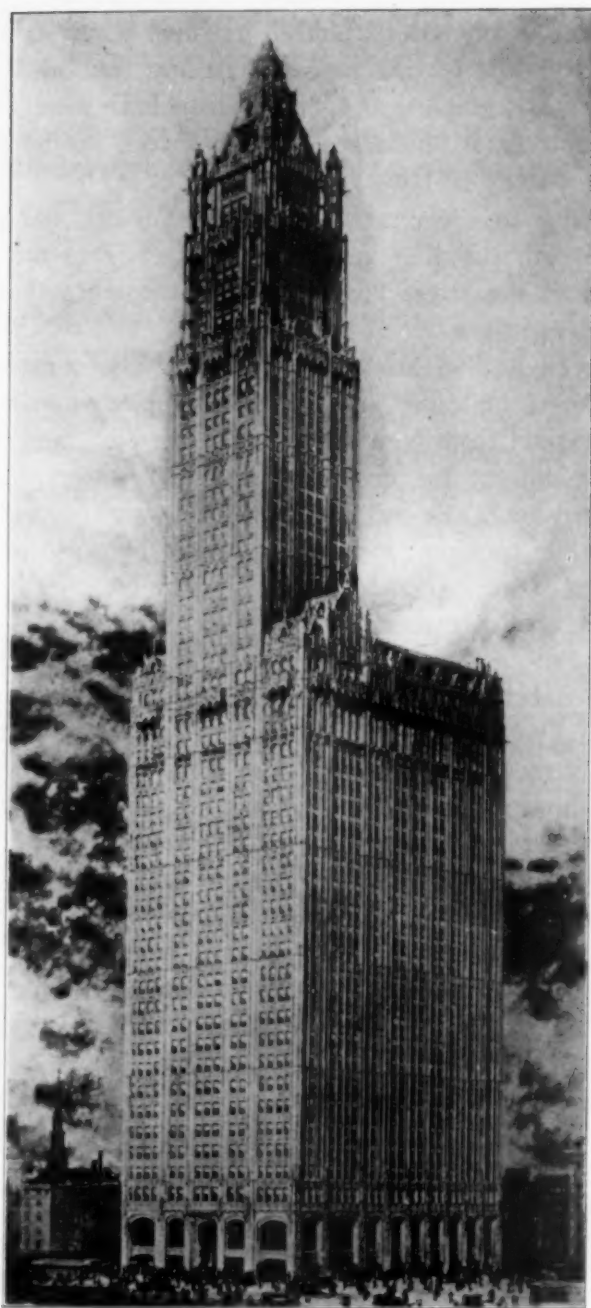
tect, Isaiah Rogers." The daily papers of the preceding day, the last number of the *Mechanics' Magazine*, containing a full-length portrait of Lafayette and Goodrich's picture of New York, were also deposited in the box. The dimensions of the building are as follows: The length fronting Broadway, 201 feet 1 inch; fronting Barclay street, 154 feet; fronting Vesey street,



Taking on a Passenger.

146 feet 6 inches. The specifications read: "There are to be six stories." The height to the top cornice, 77 feet. In the centre a court-yard, measuring 105 feet by 76 feet. Each of the fronts built of blue Quincy granite. "As the principal entrance will be on Broadway," the account of it at the time read, "there will be four columns—two of the Doric and two of Antae—surmounted with entablature." This, briefly, is a description and dimensions of the old Astor House, which since those early days of our forefathers up to the beginning of this present summer has presented a menu to its patrons that would tempt the appetite of the most fastidious. And the fastidious were its patrons in the early days, from the time of the Boydens, Colemans, Stetsons, and, later, Flavius J. Allen, Mrs. Flavius J. Allen-Guindon and her estate, managed by Mr. Alfred H. Thurston, and finally conducted by that gentleman under the firm name of A. H.

Thurston & Company from 1909 until the present, when it was closed out by the sale of the contents a few weeks ago. But still the old structure stands proudly and solidly as in the olden days, looking across to the Post Office, and respectfully regarding old St. Paul's Church on the right, while it looks with admiration mixed with awe at its towering neighbor on the left, the Woolworth Building. The old Astor House has seen the beginning of skyscrapers, when ten stories was regarded as "going up," and has seen the gradual but constant increase, until she now has as her nearest neighbor the most modern thing in business buildings, the structure that, with its 55 stories, has won the distinction of being the tallest building in the world. Just think of it, 49 stories above where the grand old hotel in which the A. V. M. A. was organized, left off. And this unrivalled masterpiece of man's handiwork, in which business is being transacted to-day, was not begun when we were in session in San Francisco. It was started in November, 1910, and it has been our good fortune to observe each step in its progress and in its growth, since the sinking of the caissons, which it was necessary to drive 130 feet below the level of the sidewalk, in order to reach bedrock. It cost enough to build a small town from the time of sinking those caissons until the evening a few weeks ago (comparatively speaking) when the president of the United States in Washington threw over a lever connected with dynamos in the basement, and current was flashed to every lamp, from topmost pinnacle to lowest basement; it was at 7.38 in the evening and was followed by a banquet given in honor of the architect, Mr. Cass Gilbert, by the owner of the building, Mr. Frank W. Woolworth. And when we say owner, we mean just that; for this largest building ever erected by an individual, at a cost of \$13,500,000, is *all paid for*, from the sub-basement to the 55th story it actually belongs out and out to one individual, Mr. Woolworth, and is the marvelous outgrowth of a humble commercial idea, the 5 and 10-cent store. Reaching one-seventh of a mile into the air this towering edifice would, if laid out flat, be longer than three city blocks. Standing alongside the Cathe-



Woolworth Building, Fifty-five Stories—The Tallest Building in the World. (910 feet high.)

dral of Cologne, the latter would be 250 feet below its top, while the Great Pyramid of Cheops would be 200 feet below, making them dwarfs by comparison. The Metropolitan tower, the wonder of architects, is outclassed by eighty feet, the height of an ordinary six-story building.

According to specifications of Cass Gilbert, the architect, the Woolworth Building measures 792 feet from the dome of the cupola to the street level, and contains more than 24,000 tons of steel girders.

Seventeen million bricks were used in the construction of this wonderful building, and 87 miles of electric wiring (sufficient to extend from New York to Philadelphia, and its 80,000 lamps would light the entire 40 miles of waterfront around Manhattan Island. The building has a total weight of 206,000,000 pounds at the caissons; increased at times by wind pressure, it is estimated about 40,000,000 pounds. The building is designed to stand a wind pressure of 250 miles an hour. Its height is 910 feet, 230 feet higher than that said to be reached by the Tower of Babel, before the confusion of tongues prevented the continuation of the work. Forty acres used to be considered a fair-sized farm (at least here in the East), and yet Mr. Woolworth has that much space on his plot of about 200 feet square. He has 27 acres of rentable office space, and about 13 acres taken up with elevators and corridors, there being 28 elevator shafts. No one can tell how many people will enter and leave the building each day, but it is estimated that it will have not less than 10,000 tenants of its own. And so we might continue to write of the wonders of this great office building until we tired you with details, and still there would be much more to be told; not to mention the scores of other monuments to the art of architecture and civil engineering. But this will give you some idea of it, and all of you who attend the A. V. M. A. meeting, can see it for yourselves; as the car that passes the Hotel Astor will take you right to it, as will also the elevated road and the subway (these latter being much quicker), and you can go up in the tower, which is 86 feet by 84 feet and 55 stories high, and see

New York and its surroundings, and go back home enjoying the distinction of having been in the tower of the *tallest building in the world*.

Such a building in a city where, in some sections of it, street cars are still drawn by horses. Is this story, then, not a glimpse of New York Old and New?

FIFTIETH ANNIVERSARY MEETING OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION IN NEW YORK.

Plans are now completed for the great international veterinary congress in New York, on the occasion of the fiftieth anniversary meeting of the American Veterinary Medical Association at the Hotel Astor, Broadway, 44th to 45th streets, September 1, 2, 3, 4, 5. It has required a great amount of work on the part of the local committee in arranging the plans for this meeting, so as to serve the best interests of the association, because it is a somewhat different occasion from any previous meetings, marking an important epoch in the history of veterinary medicine in North America. But at last everything is arranged, and from the present outlook the occasion will give to veterinary

	MONDAY September 1	TUESDAY September 2	WEDNESDAY September 3	THURSDAY September 4	FRIDAY September 5
9.30 to 12 A.M.	Opening Session North Ball Room 8th Floor Hotel Astor	General Session North Ball Room	General Session North Ball Room	Section Work 1 Surgery-Room 1 2 3 Sanitary Science and Police (Symposium)	Section Work 1 Surgery-Room 1 2 Medicine-Room 2 3 Sanitary Science and Police- Room 3
2 P.M.	Section Work 1 Surgery-Room 1 2 Medicine-Room 2 3 Sanitary Science and Police.-Room 3 College Faculties and Examining Boards Nimrod Room	Section Work 1 Surgery-Room 1 (Symposium) 2 3 Sanitary Science and Police.-Room 3 College Faculties and Examining Boards Nimrod Room	Section Work 1 Surgery-Room 1 2 Medicine-Room 2 (Symposium) 3 College Faculties and Examining Boards Nimrod Room	General Session On Board Steamboat	General Session Closing Meeting North Ball Room
5 P.M.	General Session Social Features	Reception	General Session	Banquet	

medicine in this country an impetus that will speed it on to greater achievements, and the next half-century will witness advancements inconceivable at this time.

The schedule on preceding page will enable our readers to take in at a glance the general plan of the week's work that was outlined to them in the July REVIEW, and the program here reproduced will give a fair idea of the literary feast that is in store for those in attendance. It also speaks well for the activity and good judgment of the secretary in securing so many excellent papers from authorities on the subjects treated:

SANITARY SCIENCE AND POLICE (in charge of Charles H. Higgins, Ottawa, Ont., Canada)—Title Not Available, E. C. Schroeder, Washington, D. C.; illustrated address on "Bureau Inspection" (Moving Picture Machine), W. T. Houck, Bureau of Animal Industry, New York; "Meat Inspection in Canada," R. Barnes, Ottawa, Canada; "The Sanitary Barn and Its Relation to Clean Milk," Cassius Way, Harvard, Ill.; "An Unusual Outbreak of Infectious Mammitis in a Dairy Herd and Methods of Control," B. T. Woodward and J. Traum, Washington, D. C.; "The Need for Physical Examination in the Diagnosis and Control of Cattle Abortion," W. L. Williams and J. N. Frost, Ithaca, N. Y.; "The Production of Artificial Immunity against Tuberculosis in Domestic Animals," S. H. Gilliland and C. J. Marshall, Philadelphia, Pa.; "Control of Tuberculosis in Minnesota Pure-Bred Cattle," S. H. Ward, St. Paul, Minn.; "On the Value of 'Abortin' as a Diagnostic Agent for Infectious Abortion in Cattle," K. F. Meyer and J. B. Hardenbergh, Philadelphia, Pa.; "Immunization Tests with Glanders' Vaccine," J. R. Mohler and Adolph Eichhorn, Washington, D. C.; "The Eradication of the Cattle Tick and the Development of the Cattle Industry in the Southern States," J. A. Kiernan and George R. White, Nashville, Tenn.; "Apparent Inconsistencies of Biologic Diagnostics," R. A. Archibald, Oakland, Cal.; "The Paratuberculous Enteritis of Cattle in America," K. F. Meyer, Philadelphia, Pa.; *to be read by V. A. Moore, Ithaca, N. Y.; "Con-

* From Report of Committee on Diseases.

trolling Contagious Epithelioma, Chicken Pox or Roup by Vaccination," F. B. Hadley and B. A. Beach, Madison Wis.

MEDICINE (in charge of George H. Glover, Fort Collins, Colo.)—"Epizootic Equine Encephalomyelitis," C. H. Stange, Ames, Iowa; "Infectious Cerebro-Spinal Meningitis of Horses," B. F. Kaupp, Spartanburg, S. C.; "Cerebritis—A Result of Forage Poisoning, or So-Called Equine Cerebro-Spinal Meningitis," A. T. Kinsley, Kansas City, Mo.; "Physiologic Principles in Therapeutics," P. A. Fish, Ithaca, N. Y.; "Veterinary Science, from a Country Practitioner's Standpoint," J. F. DeVine, Goshen, N. Y.; "Cannabis," Herbert F. Palmer, Philadelphia, Pa.; "Dosage of Medicinal Agents as Governed by Absorption and Elimination," H. Jensen, Kansas City, Mo.; "A Preliminary Report on the Value of Leucocytic Extract, from a Therapeutic Standpoint," R. A. Archibald, Oakland, Cal.; "Artificial Insemination and Its Relation to the Veterinarian," F. F. Brown, Kansas City, Mo.; "The Atropine Series," H. D. Bergman, Ames, Ia.; "Some Phases of Necrobacillosis in Cattle Practice," John P. Turner, Washington, D. C.; "Therapeutics of Mastitis in Cattle," Louis A. Klein, Philadelphia, Pa.

SURGERY (in charge of L. A. Merillat, Chicago, Ill.)—"General Consideration in the Diagnosis of Lameness," Joseph Hughes, Chicago, Ill.; "Lameness of the Shoulder and Elbow," J. W. Klotz, Noblesville, Ind.; "Lameness of the Hip and Elbow," David W. Cochran, New York City; "Lameness of the Hock," James McDonough, Montclair, N. J.; "Firing," Geo. B. McKillip, Chicago, Ill.; "Neurectomy," R. T. Whittlesey, Los Angeles, Cal.; and "Foot Lameness," John W. Adams, Philadelphia, Pa.

There will also be a Pathological Exhibit under the direction of W. Reid Blair, New York, N. Y., in the Yacht Room, which directly succeeds the exhibition hall. The executive committee will hold its session in the Nimrod Room, on the promenade opposite the exhibition hall.

The convention will be opened in one of the large halls on Monday morning, September 1, at 10 a. m. It is expected that

the opening address and welcome to the city will be made by the Hon. William Sulzer, Governor of New York, which will be responded to by Dr. W. Horace Hoskins, of Philadelphia. This, as is customary, will be attended by the ladies as well as the members (and other visitors), and will therefore constitute the social function for the ladies for Monday forenoon. On Monday afternoon the ladies will visit the "Lusitania," the second largest steamship afloat, which will be lying in dock at the time. Going aboard a vessel of that character will be a rare treat and will very pleasantly occupy the afternoon. On Monday evening there will be an informal gathering of the ladies in the parlors; an evening session occupying the gentlemen.

On Tuesday morning the ladies will take a trip to the beach, at the world-famous Coney Island, where, on arrival, they will be afforded the opportunity of entertaining themselves according to their own fancy, such as surf-bathing or visiting the many places of entertainment; the committee assisting them by their advice and experiences. Members of the committee will also be at the hotel to direct and advise any ladies who do not care to go to the beach, to find entertainment in the city. Tuesday evening will be given over to a reception and informal dancing.

On Wednesday morning the ladies will leave the hotel at 9 o'clock for a visit to the New York Zoological Park, the largest and best equipped "Zoo" in America, if not in the world. This park is a considerable distance from hotel headquarters, and it will be necessary for the ladies to report to the committee promptly at 9 o'clock, in order to get there in good season. For those who desire to remain at the zoological park longer than the forenoon, instructions will be given where luncheon can be obtained in the park. Those who return to the city at noon will attend a concert in the Wanamaker auditorium in the afternoon and make a tour through the various departments of the store. Wednesday evening will be left free, and may be devoted to seeing the city, attending theatres, etc. Trips through Chinatown may be made safely in automobiles, if anyone's fancy so directs, at a cost of \$1 a person.

On Thursday morning any ladies desiring to visit any of the public buildings or the shopping districts near-by, will find the committee in attendance at the hotel. But no distant trips can be undertaken, as they are to be taken for a steamboat trip in the afternoon; and as the boat leaves at 1 p. m., they are urged to arrange their plans for Thursday forenoon with that in mind, so as to join the men on the pier at that time. (As per schedule on page 463 a general session will be held on the boat.) The annual banquet will be held Thursday evening, at which such prominent men have been invited to speak, as Senator Johnston of Virginia, ex-Governor Hoard of Wisconsin, Senator Edwards of Ottawa (Canada), Commissioner of Agriculture Huson of New York, ex-Commissioner of Health Evans of Chicago, Mayor Gaynor of New York, Dr. D. E. Salmon, founder and former chief of the United States Bureau of Animal Industry, and Dr. J. G. Rutherford, former veterinary director-general of Canada. Friday will be devoted to "sights of the city," including public buildings (among others the unrivaled masterpiece illustrated on page 461 of this issue, with a trip to its observation tower 55 stories above the street level), a visit to the steamships for those who could not avail themselves of the previous opportunity, Grant's Tomb and other places that may occur to the committee.

As this will be the last issue of the REVIEW that will reach the members before the opening of the convention (at least in time to be of any use to them), we reprint the list of hotels and rates published in the July issue and make a few additions thereto:

HOTEL HEADQUARTERS AND SOME OF THE MANY HOTELS
SURROUNDING IT.*

HOTEL ASTOR; HEADQUARTERS, Broadway, 44th to 45th streets. Rates, from \$2.50 a day up; with bath, from \$3 a day up.

*These rates all apply to European plan.

Hotel Manhattan, Madison avenue, 42d to 43d streets, \$2.50 and up; with bath, \$3 and up. Cadillac Hotel, Broadway and 43d street, \$1 and up. Hotel Gerard, 44th street, between Broadway and Sixth avenue; room with *use of bath*, \$1 and \$1.50 and up; room with *private* bath, \$2 and up; parlor bedroom and private bath, \$3 and up. Hotel Woodstock, 127-135 West 43d street (near Broadway), single rooms, \$1.50 to \$2 a day; with bath, \$2.50 to \$3.50; large rooms for two, with bath, \$3.50 to \$4; suites with bath, \$6 to \$8. Hotel St. James, West 45th street, near Broadway, single rooms, \$2.50 up; double, \$3.50 up. Hotel Knickerbocker, 42d street at Broadway, single without bath, \$2.50 and \$3; double without bath, \$4 and \$5; single with bath, \$3.50 to \$7; double with bath, \$5 to \$8; double with bath and twin beds, \$7 and \$8; two single rooms with bath between, \$6, etc., etc. Grand Union Hotel, Fourth avenue and 42d street, without bath, single \$1, double \$2; with bath, single \$2.50, double \$3.50. Hotel Belmont, 42d street and Park avenue, without bath, single \$2.50, double \$3.50; with bath, single \$3.50, double \$4.50, etc. Hotel Calvert, Broadway and 41st street, without bath \$1, with bath \$1.50. Murray Hill Hotel, Park avenue (Fourth avenue) and 40th street, without bath, single \$2, double \$3; with bath, single \$3, double \$4, etc. McAlpin Hotel, Broadway and 34th street, \$2 a day and up. Hotel Aberdeen, 32d street, between Broadway and Fifth avenue, 300 rooms with private baths, \$1.50 and \$2 a day. Hotel Chelsea, 222 West 23d street; with adjoining bath, \$1.50; with private bath, \$2; suites-parlor, bedroom and bath, \$3.50 up; all outside rooms. Hotel Cumberland, Broadway and 54th street; with bath per day, one person, \$2.50; with bath per day, two persons, \$3.50; suites of parlor, bedroom and bath, \$4 up. Hotel Waldorf-Astoria, Fifth avenue and 34th street; single rooms without bath, per day, \$2 up; single rooms with bath, per day, \$3 up; double rooms, two single beds, with bath, \$5 up; two double rooms, two beds each and bath, \$4 per room and upwards. Hotel Bristol, 122-124 West 49th street; write for rates.

These sixteen hotels, practically surrounding the Hotel Astor, headquarters and meeting place, are a fair sample of those radiating out from it, a few blocks distant; and cheaper ones may be found further down-town if desired.

Also furnished rooms can be had within easy distance, and restaurants abound throughout this district, as they do all over the city. No one can go hungry or get lost in New York; that is, New York proper, on Manhattan Island, where the convention is to be held; because restaurants are to be found everywhere, and the city is laid out on a numerical plan, and any one who knows how to count can find any place in the city unaided. While it would seem as though our accommodations are unlimited, we would urge that those anticipating attending the convention secure their accommodations full early, as there will be other conventions in the city that week, and thousands of visitors are always floating into old Manhattan.

RELATIVE DISTANCES OF HOTELS FROM HOTEL ASTOR—HEAD-
QUARTERS AND MEETING PLACE.

As a guide in the selection of hotel accommodations, we append the relative distance of the hotels listed, to the Hotel Astor, headquarters and meeting place of the association: Hotel Manhattan is two blocks south and three blocks east; Hotel Cadillac is one block south; Hotel Gerard is half a block east; Hotel Woodstock is one block south and half a block east; Hotel St. James is one block from headquarters; Hotel Knickerbocker is two blocks south; Grand Union Hotel is two blocks south and four blocks east, diagonally across from Grand Central Station; Hotel Belmont is two blocks south and four blocks east, opposite Grand Central Station; Hotel Calvert is three blocks south; Murray Hill Hotel is four blocks south and four blocks east; Hotel McAlpin is ten blocks south; the Hotel Aberdeen is twelve blocks south and half a block east; the Hotel Cumberland is nine blocks north; the Waldorf-Astoria is ten blocks south and one block east; the Hotel Bristol is five blocks south, east of Broad-

way; and the Hotel Chelsea is twenty-one blocks south and two blocks west.

TRANSPORTATION.

The various passenger associations have granted the following concessions for those wishing to attend the meeting:

New England Passenger Association (including the New England states) offers a rate of fare and three-fifths on the certificate plan.

Trunk Line Association (including New York, New Jersey, Pennsylvania, Delaware, Maryland and the northern parts of Virginia and West Virginia) offers an excursion rate of a fare and three-fifths on the certificate plan.

Eastern Canadian Passenger Association (including all the eastern portion of Canada) offers an excursion rate of a fare and three-fifths on the certificate plan.

All the other passenger associations, embracing those states and provinces in the United States and Canada not mentioned above, have recommended that our members take advantage of the summer tourist fares, which will be available, and information concerning which can be obtained from the local ticket agents. It is advisable to take up the matter of transportation, rates, etc., with the local ticket agents at once, as desirable excursions and rates may be offered about the time of the meeting from local points.

The foregoing will give our readers a fair idea of what is in store for them in the American metropolis the first week in September, the accommodations to be had, and the transportation conditions. Secretary Marshall has the preparation of the programs well under way, and will have them in the hands of the members early this month, so that all that remains for those who will attend this great veterinary congress to do is to complete the papers they will present and their plans for leaving their homes, and come to New York. The host city bids you come and is waiting to welcome you!

THE M'DONOUGH FIVE-CALKED SHOES.

It has been our good fortune during the past four or five years to hear a great number of papers,* addresses and lectures by Dr. James McDonough, of Montclair, N. J., on the advantages of the five-calked shoe over the universally used three-calked shoe that was in use generations before we were born, and we were convinced that the doctor's arguments were logical and based upon mechanical facts from the beginning; a conviction that has been borne out by actual facts on many occasions during the period of time mentioned. It therefore affords us much pleasure to publish in our present issue two excellent papers bearing upon this important subject, one in the form of a report by a committee appointed by the president of the Veterinary Medical Association of New Jersey to examine limbs of horses, and another by Dr. McDonough, bearing on the report of that committee. These two papers will be found to be excellent reading, as they are full of forceful reasoning. In fact they so forcefully impressed the New Jersey association that one of its members offered the following resolution, which was unanimously indorsed by the organization:

"It is the sense of this meeting that the use of three-calked shoes is injurious to the limbs of horses, and we recommend that their further use be discontinued. That we indorse and recommend for use in their place the form of shoes introduced by Dr. McDonough, and hereafter to be known as the McDonough five-calked shoes."

The members of the association were the more appreciative of the valuable improvement that their honored member offered to the horse-owning public because of the fact that he had never at any time since he had conceived the idea and had begun to advocate it had any motive in so doing other than the benefit that would accrue to the horses and their owners by its adoption. He gave of his knowledge freely, with no thought of a financial return, and his fellow members have a warm

* See article and illustration of shoe on pages 622 to 639, March, 1913, issue of AMERICAN VETERINARY REVIEW.

place for him in their hearts and a high regard for his singleness of purpose, and so expressed themselves in offering and indorsing the resolution. After the resolution had been adopted Dr. McDonough, feeling that if his name be given to a shoe he wanted it to be the shoe that he had designed and no other, rose and addressed the association as follows:

"For the benefit of horses I give to the manufacturers of horseshoes the right to make that form, or those forms, of horseshoes indorsed by this association and known as the McDonough five-calked shoes. And, upon my approval of their form and shape, they be allowed to sell them under that name and title.

"I move that a record of the above, together with a description of the shoes referred to, be entered upon the minutes of this meeting."

That the McDonough five-calked shoe is the logical and proper method of shoeing all horses that are not shod with a plain shoe or a pad, there can be no question, as it imitates nature as nearly as it can under the circumstances, in giving to the sides of the limb the support that nature intended when she made the quarters the broadest part of the foot, and the whole horse world is indebted to Dr. McDonough for demonstrating this principle which seems to have been overlooked for so many years.

SOME ARTICLES IN TYPE FOR SEPTEMBER ISSUE OF REVIEW.

—Studies on the Etiology of Equine Influenza, by N. S. Ferry, Ph.B., M.D., Detroit, Mich.; The Artificial Inoculation of Cattle with the Bacillus of Contagious Abortion, by Prof. Frank M. Furnace, Biologist, Maine Agricultural College; An Outbreak of Epizootic Abortion in Cattle, by J. Desmond, Principal Veterinary Officer of the Commonwealth Military Forces, Adelaide, South Australia; Vaccination for Infectious Diseases, by R. M. Staley, Harrisburg, Pa.; Anthrax, by R. C. Reed, Newark, Del.; A Facial Calculus, by B. F. King, Shrewsbury, N. J.

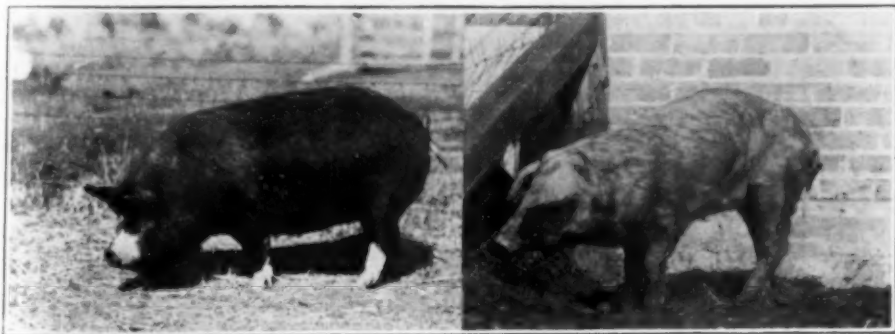
ORIGINAL ARTICLES.

HOG CHOLERA.*

By H. PRESTON HOSKINS, ASSISTANT VETERINARIAN, UNIVERSITY FARM,
ST. PAUL, MINN.

HISTORY OF CHOLERA.—Hog cholera has been recognized as a specific, contagious disease of swine for about a hundred years. The first authenticated outbreak in this country occurred in 1833, when large numbers of hogs in Ohio died from a disease which answers the description of hog cholera as we now know it.

This highly contagious disease has caused the loss of millions of dollars annually. It has been estimated that the losses during 1912 reached fifty million dollars. One state alone is said to have sustained a loss of ten million dollars from this dread dis-



I had serum.

I wish I had.

ease in 1912. Although the heaviest losses from this scourge have been suffered in the corn-belt states, Minnesota has been losing large numbers of hogs from cholera during the past few

* Reprinted from Minnesota Farmers' Library—Extension Bulletin No. 37.

years, especially in the southern counties. Minnesota has gradually been taking a place among the pork-producing states, and cholera has increased in proportion to the increase in her hog industry. The importation of hogs from infected localities of other states has played a prominent part in the spread of the disease, not only in this state, but all over the country.

Cause.—Cholera was for a while attributed to several different kinds of germs found in the bodies of sick or dead hogs, but about eight years ago veterinary bacteriologists in the employ of the Bureau of Animal Industry of the Department of Agriculture, investigating the disease, came to the conclusion that hog



Fig. 2. Inner lining of large intestine showing characteristic ulcers.

cholera was not really due to any of the hitherto known organisms, but that it was caused by a germ of some kind which had never been identified up to that time. The germ is so small it will pass through the pores of the finest porcelain filters made, and has never been seen even with the most powerful microscopes used. Other facts bear out the truth of this conclusion. The cause of the disease is classified as a filterable virus and usually spoken of as such. Measles and scarlet fever of human beings, swamp fever of horses, and foot and mouth disease of cattle are other diseases caused by filterable viruses.

PRECAUTIONS.—Besides the actual cause of the disease, there are other factors which must be considered from a hygienic standpoint, in the prevention and control of the disease. If the vitality of a hog is weakened by being kept in poor quarters, by being improperly fed, or by being infested with parasites of different kinds, there is less chance to ward off infection. It is therefore of the greatest importance that the hog pens and yards be kept reasonably clean, well ventilated and drained; that proper attention be paid to the feeding, so as to insure the animals a wholesome, well-balanced ration; and that watch be kept for evidence of parasites, such as lung worms, lice and mange mites.

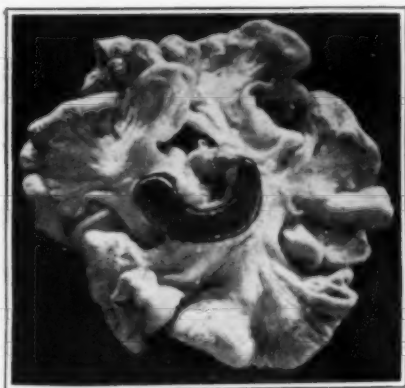


Fig. 3. Intestines showing hemorrhages. (A line has been drawn around the lymph-gland in the center, which is much swollen and very dark in color.)



Fig. 5. Kidneys having the so-called "turkey-egg" appearance. Note minute hemorrhages on surface.

SYMPTOMS.—While the symptoms of hog cholera are quite characteristic, they may vary considerably in different animals, outbreaks and localities. Hogs that are susceptible to cholera usually show signs of the disease in from one to three weeks after they have been exposed to infection. Sometimes no symptoms are noticed, but one or more hogs die suddenly, without warning. Then others will follow, showing some or all of the usual symptoms.

Loss of appetite is the first symptom usually noticed. The animal may lag behind the rest of the herd, show little or no

desire for food, and drink large quantities of water on account of high fever. When he walks he has a staggering gait, and is very unsteady in his movements, especially in the hind legs. When he stands still, he frequently braces himself against a post or another hog, and often stands with the hind legs crossed. Diarrhea may be noticed, but is not always present, as the animal may be constipated, depending greatly on the kind of feed it has

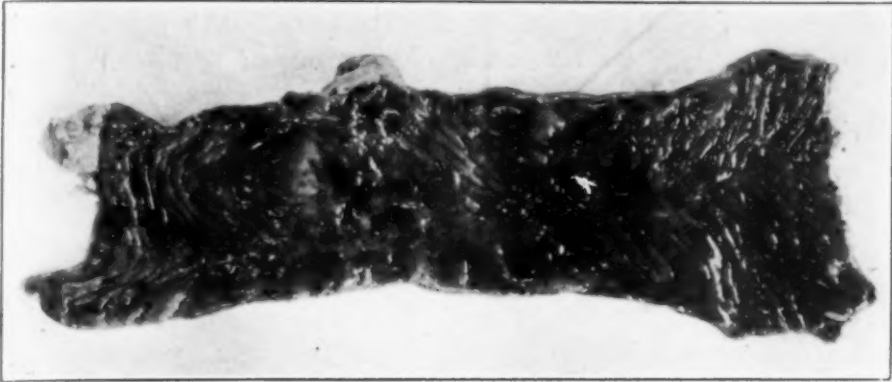


Fig. 4. Inner lining of intestine, showing inflammation and hemorrhages.

been receiving. Neither constipation nor diarrhea alone is enough to indicate the presence of cholera. The eyes are frequently inflamed and discharge a sticky mucus, which tends to glue the lids together. This is usually seen only in those hogs in which the disease runs a rather chronic course.

Redness of the skin is often noticed, especially in white hogs. The skin behind the ears, under the belly, and along the flanks is most frequently affected. As the animal gets weaker and death approaches, this reddish color changes to a purplish tinge. Coughing is often noticed, due to the lungs being affected by the disease. However, it should be remembered that lung worms, dust and a number of other causes frequently give rise to a cough when cholera is not present. Vomiting is sometimes observed and indicates an inflammation of the mucous lining of the stomach. In slowly progressing cases this may go on to the further stage of ulceration. Bleeding from the nose is sometimes seen just before death.

With the continued loss of appetite and diarrhea, the hog rapidly loses flesh and the flanks become quite sunken. The hog frequently stands with the head down, the back arched or humped, the tail hanging limply, the hind legs crossed. A very characteristic attitude for a hog affected with cholera is shown on page 473.

If the temperature be taken, the thermometer will usually show quite a high fever, up to 107 or 108 degrees Fahrenheit. The course of the disease varies. The first animals stricken in the herd usually die very soon. As the disease progresses, the later cases do not die so rapidly, and some hogs may develop a chronic form of the disease, and not die for several weeks. Some may even recover, and such hogs are rendered immune against the disease for life.

AUTOPSY.—Post-mortem (after death) examination of a hog dead from cholera may reveal certain abnormal appearances, or conditions of organs or parts of the body. The intestines may suffer extensive inflammatory changes, the outer coat showing small hemorrhages, while the lining of the large bowel may have the characteristic ulcerations. The lymph glands draining the intestines are swollen and dark, sometimes almost black. See Figures 2, 3 and 4. Lymph glands in other parts of the body show the same thing, especially those at the angle of the lower jaw and those between the lungs. Normally these glands are gray.

The kidneys show numerous small hemorrhages, both on the surface, beneath the capsule or surrounding membrane, and in the substance of the organs as shown in Figure 5. This condition is spoken of as the "turkey-egg" kidney, on account of the speckled appearance produced by the hemorrhages, and it may be observed more readily after the capsule has been stripped off. The hemorrhages are quite small, and appear as dark specks from about the size of a millet seed up to the head of a pin.

The lungs are frequently the seat of extensive changes. Dark areas are noticed, especially on the anterior lobes (that part of the lungs extending up into the front of the chest cavity). To

the touch these feel firm, more like liver tissue than normal lung, which is somewhat elastic, and pink in color. The lung may also

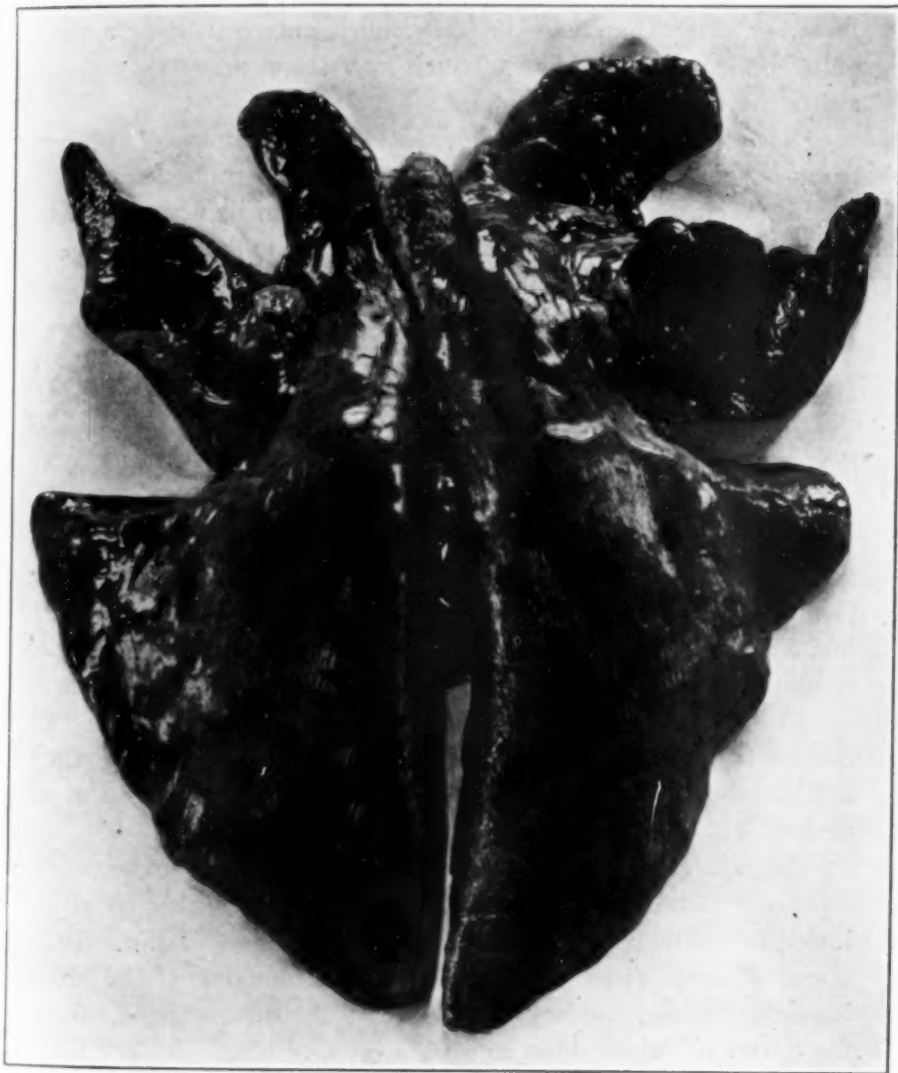


Fig. 6. Lungs showing hog-cholera lesions. Note dark areas in upper tips.

have a speckled appearance due to numerous small hemorrhages scattered over the surface and throughout the substance of the

organ. Other organs may be affected, as, for instance, the heart, which may show a few of the hemorrhages on the surface, similar to those on the kidneys. The spleen may also show some of these, or this organ may be very much enlarged and be very pulpy on cutting it. The bladder may show hemorrhages, on either the inner or outer surface.

DISEASES SOMETIMES MISTAKEN FOR CHOLERA.—Certain troubles should be carefully distinguished from cholera. If they are mistaken for it they may cause more alarm than is necessary and money may be lost by treatment that can do little or no good.

Garbage Poisoning.—In the vicinity of our large cities and towns many hogs are fed on garbage and table refuse exclusively. These hogs sometimes develop intestinal disorders, the symptoms and lesions of which may be mistaken for cholera. The cause has been found to be the presence of powdered soaps in the garbage. These soaps irritate and inflame the lining of the intestinal canal, and act as poisons.

Lung Worms.—Certain worms have been found to inhabit the air-passages of the lungs. Frequently a number of young pigs in the same herd will appear sick and gradually lose flesh. The most marked symptom, however, will be the persistent, hard cough, caused by the irritation produced by the worms in the air-passages. The distinguishing difference between this condition and cholera is that only the young pigs will be affected as a rule; they will not die rapidly as with cholera; and the other symptoms of cholera will be absent.

Tuberculosis.—This disease affects hogs in large numbers, especially those fed on skim milk from creameries, or those allowed to follow cattle affected with tuberculosis. If the milk in question comes from cows that are tuberculous, or if the cattle have the disease, the hogs may develop the disease from taking the germs of tuberculosis into the digestive tract. Tuberculosis should not be confused with cholera on account of its slow course. Not all hogs in the herd will appear to be affected. Unthriftness will be the most marked symptom in the case of tuberculosis, and the disease rarely causes sudden death, as is the case with cholera, without other symptoms preceding.

DISPOSITION OF CARCASSES.—The carcasses of all hogs which have died from cholera, lung worms, or tuberculosis should be so disposed of that none of the infection can be scattered to uninfected premises. The best way to dispose of the carcasses is to burn them. When this is not possible they should be buried at least three feet in the ground and covered with quick lime. If this is not done, prowling animals or scavenging birds may carry parts of the carcass to healthy herds. Pens in which there has been cholera should be thoroughly disinfected and no hogs should be introduced into the herd unless they have been rendered immune by treatment with serum.

Disinfection.—A few general suggestions concerning the disinfection of hog houses, pens, and yards might be in order at this time. Before we had any means of successfully combating hog cholera, it was the custom to clean up and disinfect the premises after cholera had carried off most of the hogs, and then start all over again. Now that we have a means of combating the disease, by making use of a preventive serum, we are likely to neglect disinfection as unnecessary.

The belief has become very widespread that freezing will kill hog cholera germs. This is not true, even in a state like Minnesota, where the winters are sometimes unusually severe. The only effect which extreme cold appears to have upon these germs is that it weakens them temporarily or seems to hold them in check for a while, until the appearance of warmer weather. We have hog cholera during the winter, but it usually does not spread so rapidly, the cases are not so acute or sudden, and frequently they are complicated with lung troubles, such as pneumonia.

The following general rules are offered for disinfecting premises where hog cholera has existed:

1. Burn all dead hogs, as near the place where they died as possible, or at least bury them. Burning is better.
2. As soon as the last victim of cholera has either died or recovered, burn all the litter that has been contaminated with the discharges from the sick animals.
3. Spray the pens, inside and out, with a strong disinfectant

solution, using a force pump if one is available, so as to get into all the cracks and corners.

4. Apply a coat of whitewash containing five per cent. of carbolic acid to the walls of the hog houses, pens and fences.

5. Sprinkle the floors of the pens and yards with slaked lime.

6. Scald frequently with boiling water all buckets and troughs used in feeding the hogs.

SPREAD OF THE DISEASE.—The germs of hog cholera may be spread in a variety of ways. It is not necessary for healthy, non-immune hogs to come in contact with sick hogs or cholera-infected premises in order to contract the disease. Persons may carry the germs on their clothing or shoes; dogs, cats, and birds may spread the infection. Treated or immune hogs may carry the infection from infected herds or pens although perfectly healthy themselves. Stock cars that have not been thoroughly disinfected may be the means of spreading the disease. A herd may be infected by improper vaccination methods, and instead of immunizing the hogs it may actually infect them with cholera, if not carefully and judiciously used.

PREVENTIVE TREATMENT.—It has been recently discovered that well hogs may be treated (vaccinated) with hog-cholera serum so that they will not take the disease if exposed later. Such treatment is called immunization. This method of treatment has passed the experimental stage and is now on a practical working basis. There are several different methods for immunizing hogs or making them immune to cholera. Immunization consists in bringing about the presence of what are called immune bodies in the blood. They enable the animal to resist such cholera germs as enter the system. These immune bodies are present in the blood of hogs that have recovered from cholera. Such animals are sometimes called "immunes."

A hog that has been treated with hog-cholera serum without exposure to cholera at the same times does not form any protective substances or immune bodies of its own. It is rendered immune for a short time (three weeks to two months), due

to the presence of the protective substances injected. Such treatment is known as the single or "serum-only" method. On the other hand, a hog that has been treated by the single method, and exposed to cholera at the same time, will usually form its own immune bodies in its blood, sufficient to render it permanently immune. The function of these immune bodies, or protective substances, in the blood appears to be that of neutralizing or rendering harmless the cholera germs when they gain entrance to the hog's body.

When it is desired to make a hog permanently immune, and there is no cholera yet in the herd, it is necessary that hog cholera germs be introduced into his system simultaneously with the serum, which protects the hog from the cholera germs injected. This is accomplished by the introduction into the hog's body of a small amount of virus. Virus is the germ-laden blood obtained from a hog sick with cholera. It is injected at the same time with the serum, but with a separate syringe. By this method the hog is enabled to develop enough protective substances of its own to render it permanently immune. This is known as the double, or "serum-virus" method of treatment.

We advise single treatment for herds recently infected. From experience we have learned that it is not a good plan to use serum in herds where the disease has prevailed for a long time, or where a large part of the hogs have died, and where many others are sick. Some disappointing results have been obtained by using the single method in unexposed herds, because the disease may be contracted six weeks later or in even less time, because the immunity conferred by the serum has died out.

The double method may be used in herds in which cholera has just appeared, or in healthy herds in a locality where cholera has made its appearance. There is some risk of introducing cholera into a healthy herd by the double treatment. **It must** therefore be administered with extreme care, because when used carelessly, it may have the bad result of causing a large number of the treated hogs to develop vaccination cholera and thereby infect the premises. Even when used with extreme care, by

experts, a small percentage of vaccinated animals (about two per cent. on a large number) contract the disease as a result of the treatment. In double vaccination both serum and virus are injected at the same time, but at different places and with separate syringes. A larger syringe is used for the serum than for the virus, because the dose of serum is considerably larger.

Inasmuch as the virus which is given contains the germs of cholera, it actually causes a mild attack of the disease in the hog treated, but the serum injected at the same time serves to hold the disease germs in check and does not allow them to get a foothold in the hog's body. Most hogs will not show any effect from the double vaccination, but a few may refuse a feed about the fourth or fifth day, and then be all right again in a day or so.

Some hogs are much more susceptible to cholera than others, or, on the other hand, some hogs have much more natural immunity against cholera than others. Herd after herd may be vaccinated by the double method without a single case of cholera developing as a result. Then a herd may be vaccinated by the same veterinarian, using the same serum, and a number of cases of cholera develop afterward. This can be explained in two ways: (1) These hogs may have been infected before the vaccination, but not long enough for symptoms of cholera to have developed; or, (2) the great variation in natural resistance possessed by hogs may explain these disappointing results.

It will be seen from a comparison of the single and double methods that in the former the cholera germs present in an infected herd answer the same purpose as the virus given in the double method. Instead of the hogs taking the germs into their systems in a natural way when the single method is used, they are actually inoculated with the germs when the virus is injected.

Artificial Pen Exposure.—As a substitute for the serum-virus method, a few veterinarians in this State have been making use of a method of vaccination to which we have applied the name "artificial pen exposure." It is employed in neighborhoods

where cholera has made its appearance, but only on farms or in herds where cholera has not yet broken out. The treatment consists in the administration of the requisite amount of serum, and then the introduction into the herd of one or more hogs dead from cholera, or hogs that are very sick with the disease and about to die.

This should be done immediately after the hogs have received the serum treatment. The treated hogs are then allowed to associate as closely as possible with the sick hog and even eat the dead carcass. One veterinarian has gone a step further and has cut up a dead hog and fed a small portion of the flesh to each hog treated, in this way being sure that every hog gets some infection, which is of the greatest importance for successful results.

By taking actual infection into their systems in this way, or by association, the vaccination process is intensified, and practically the same results may be obtained as if the serum-virus method had been employed, or the herd naturally infected and treated with serum only. One disadvantage is that this method infects the premises which otherwise might have remained uninfected. But in the cases in which it has been used the chances are that if vaccination had not been employed the herds would have become infected sooner or later on account of their closeness to infected herds.

Results reported to date, where artificial pen exposure has been employed, show that 651 hogs have been treated in this way, with only nine deaths from cholera following, a mortality of about 1.4 per cent.

Curative Value of Serum.—Little or no curative value is claimed for the serum, but from results already obtained, we can safely say that it is a safe and sure preventive for the disease if used by competent persons, at the proper time, in sufficient doses, and in as clean a way as possible. It should be stated, however, that the source of the serum should be taken into consideration. There are on the market a number of commercial hog-cholera serums. Most of these are in all probability

prepared under careful supervision, but only too frequently do we hear of bad results following the use of some of the commercial serums. At the present time there is no state or federal supervision of these commercial products, and no laws giving state or federal officials the authority to test them for potency or purity. These facts are mentioned because the serum treatment has been very unfavorably criticised by some persons on account of bad results following the use of a certain brand of serum. Fortunately these instances have been fewer in Minnesota than in some other states.

Ordinarily it is inadvisable to treat sick hogs. Sometimes, however, hogs that are visibly sick are treated and saved. More frequently chasing, catching and holding the hog for injection proves to be more than the sick hog can stand in his weakened condition, and death may follow soon after treatment. We usually recommend against treating hogs showing a temperature of over 105 degrees Fahrenheit.

Hog cholera serum is the clot-free blood obtained from a hog that has been rendered very highly immune against cholera by one of several methods now in use. It takes from one to two months to work a hog up to the point where the blood will contain enough protective substances so that when a small amount of it is injected into another hog the latter will be rendered immune.

Virus is blood drawn from a hog that is very sick with cholera and about to die. It is virulent or disease-producing blood and contains the actual living germs of cholera and must be handled cautiously. The Experiment Station will not furnish virus with serum unless a veterinarian from the station or from the State Live Stock Sanitary Board is going to use it, because of the possibility and danger of causing the disease when used by inexperienced persons.

HOW SERUM IS PREPARED.—Hogs are selected that are immune against cholera. They may become immune (1) by having recovered from an attack of cholera; or (2) by having been given the double or serum-virus treatment. Hogs weighing be-

tween two and three hundred pounds are desirable. The next step is to render these hogs hyperimmune; that is, to intensify their immunity, or render them very highly immune. This is

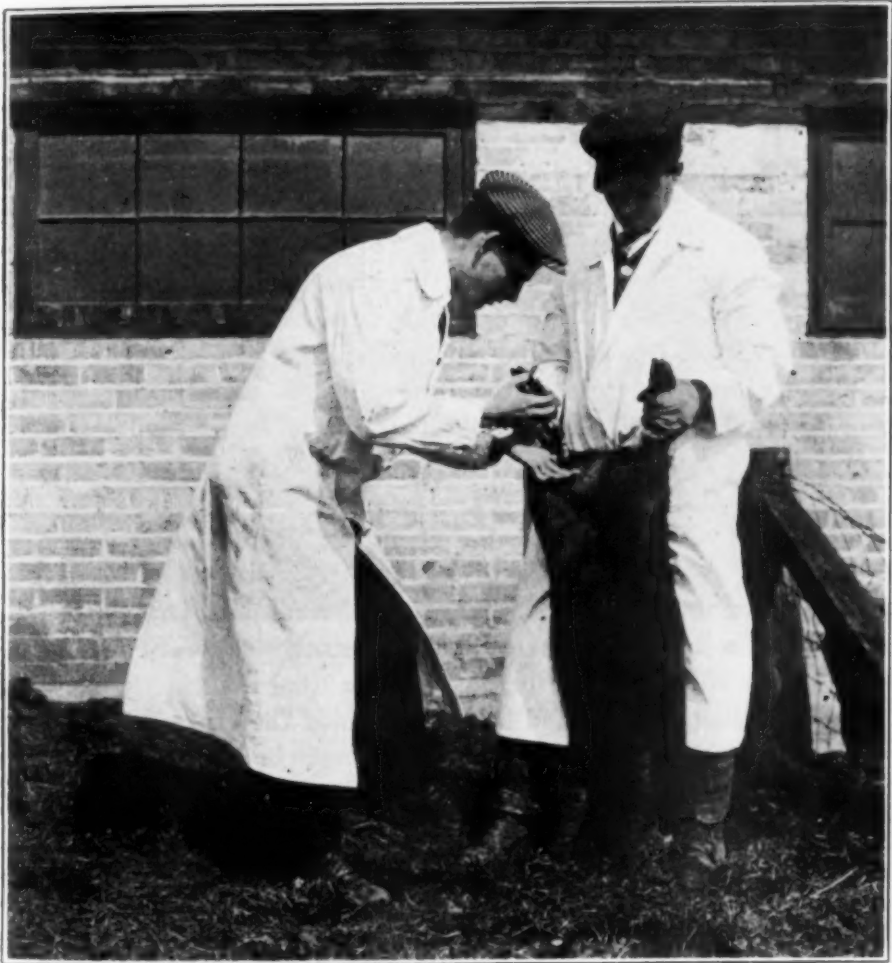


Fig. 7. Treating a 75-pound hog.

done by introducing large quantities of virus, in proportion to the weight of the hogs into their bodies in different ways, either into the abdominal cavity, or into the heavy muscular tissues, or into the tissue just beneath the skin, or into one of the blood

vessels, such as the vein in the ear. The virus is either injected all at one time or in divided doses at weekly intervals. Ten days after the last injection the hog's blood contains a very large amount of the protective substances desired. A hog that is simply immune has only enough of the protective substances in its blood for its own protection, but a hog that is hyperimmune has these protective substances in its blood in such large amounts that a small part of the blood of such a hog when injected into another will have the power of rendering that hog immune.

At this point the hyperimmune can then be bled for serum. This is done by cutting off a small piece of the tail and collecting the blood in a sterilized vessel. The clot is removed, the serum measured, and a small amount of preservative added. It is then stored in sealed bottles in a cool dark place until it can be tested. It takes three weeks to test the serum, and if the test shows that the serum is not up to standard strength, it is not used.

From two to three pints of blood are removed each time the hog is bled. He may be bled two, three, or four times, and then rehyperimmunized; that is, the former process must be repeated, because the bleeding has resulted in decreasing the amount of protective substances in the blood. The total number of bleedings is usually determined by the length of the tail. When the tail gets so short that the hog can no longer be bled, it is killed, and the blood collected. On the average one three-hundred-pound hog will yield about fifteen thousand cubic centimeters of serum (three and three-quarter gallons) which is sufficient to treat five hundred hogs weighing one hundred pounds each.

Manner of Holding Hogs for Treatment.—Shotes weighing seventy-five pounds or less can be held up by the hind legs and the serum injected into the ham, Fig. 7. Pigs weighing two hundred pounds or less may be thrown on their backs and held in this position while the serum is injected into the ham. Large hogs can be snubbed up to a post and the serum injected into the ham from the rear, Fig. 8. This is the best method for

pregnant sows. A question often asked is, "Can pregnant sows be treated safely?" They can if they are handled with care. The injection of serum never produces abortion or other bad results, but rough handling often does. It is advisable, however, to treat at least a month before farrowing, if possible.



Fig. 8. Method of securing and treating a heavy brood sow.

Care of Hogs Before and After Treatment.—Hogs should be fed sparingly during the twenty-four hours previous to treatment. If possible, they should be enclosed in the pens in which they are to be treated, so that it will not be necessary to chase them and get them warmed up just before the serum is injected. Another reason for having them penned up and ready is the time saved the veterinarian who applies the treatment. The quarters should be dry, clean, light and as free from dust as possible. When the weather is favorable, it is far better to handle the hogs out in the open air than inside of the pen or barn. After the injection of the serum, the hogs should be turned into quarters that are clean, in order to lessen the chances of infecting the wounds made by needles in injecting the serum.

by all means do not allow pigs to wallow in the mud before the third day after treatment. If no infection occurs, the small needle wounds will heal in two or three days. If disease germs get into the wounds, there may be considerable swelling and possibly large abscesses following.

Cleaning the Skin.—One of the most important steps in injecting serum, and one that is absolutely necessary for good results, is the process of cleansing the skin at the point where the serum is to be injected. A method that has been followed with extremely good results and with only a very small number of abscesses is that used by the Experiment Station veterinarians. Other ways may be just as good; but in recommending the following procedure, we can speak from experience. (1) Scrub the skin with water and soap to remove the dirt and natural secretions of the skin. Soap that contains some strong disinfectant is desirable. An ordinary vegetable brush is the kind generally used; (2) follow the soap with 70 per cent. alcohol applied on a wad of absorbent cotton, wiping the skin at the points where the needles are to be inserted; (3) inject the serum; (4) again wipe the skin with cotton and alcohol at the points where the serum was injected.

Virulent Blood Vaccination.—"V. B." or "Minnesota" Method.

It has been observed for some time that pigs from immune sows possess a high degree of immunity lasting for some weeks after birth. It has been found possible to reinforce this immunity by injecting a small dose of virus at the age of about three or four weeks. A second injection can be given later, the exact time for which is now being determined by experiments. The Minnesota Experiment Station was the first to test this method, and results up to this time give encouragement. If field trials on a large scale continue to be successful, this new method will prove of great help in the control of hog cholera. Perhaps the greatest point in its favor is the low cost of treatment, which is quite insignificant as compared with that of the serum methods.

Distribution of Serum.—The Minnesota Experiment Station produces serum for administration by competent veterinarians. Other persons, especially authorized by the Minnesota State Live Stock Sanitary Board, may administer the serum on and after August 1, 1913.

For the present, serum will be sent out, either to the veterinarian or to the hog-owner direct, with the understanding that it is to be administered only by a competent veterinarian. On and after August 1, 1913, only persons especially authorized by the State Live Stock Sanitary Board will be allowed to administer station serum.

Dosage of Serum for Injection.

Weight of Hog.	Non-Infected Herds.		Infected Herds.
	Serum-Only Method.	Serum-Virus Method.	Serum-Only Method.
Pounds	Cc.*	Cc.*	Cc.*
Up to 20.....	10	20	15
20 to 49.....	15	30	23
50 to 74.....	20	40	30
75 to 99.....	25	50	38
100 to 149.....	30	60	45
150 to 199.....	35	70	53
200 to 249.....	40	80	60
250 to 299.....	45	90	68
300 to 400.....	50-60	100-120	75-90

* 1 cubic centimeter (cc.) is about 15 drops.

15 cubic centimeters make about 1 tablespoonful.

30 cubic centimeters make about 1 ounce.

Serum is sent by express C. O. D. Orders should be sent by telegraph, telephone or special delivery mail, addressed to the Veterinary Division, University Farm, St. Paul, Minn.

Serum orders sent by ordinary mail may be subject to delay. In ordering serum it should be stated just how much serum is wanted, and not the number of doses, or number of hogs alone, unless the number and approximate weights of the hogs are given.

The present price of serum is two cents per cc., but the new law which goes into effect on August 1, 1913, will enable the station to furnish serum at the rate of one-third of a cent per cc. on and after that date. No charge is made for virus used in the double method. Serum cannot be returned for credit. An order must constitute a sale under all ordinary conditions. The amount of serum necessary for a hog of any weight can be calculated from the table on preceding page.

WHAT TO DO.—(1) *When hogs are well, and no cholera is in the vicinity*, we do not advise vaccination, provided every precaution is taken to prevent infection from entering the herd. Hogs should not be taken out of a healthy herd and sent to a show for exhibition purposes without being protected with serum. It should also be remembered that a hog that has been to a show may bring back cholera germs to a healthy herd.

(2) *When hogs are well, and cholera is in the vicinity*, the double vaccination is recommended, unless one is prepared to dispose of his hogs immediately. If hogs are to be kept, the single vaccination will confer only a short immunity, lasting from three to six weeks. Artificial pen exposure may be practiced.

(3) *When cholera has made its appearance in the herd*, hogs which are not extremely sick or in an advanced stage of the disease should be treated immediately by the serum-only method. Delayed treatment will bring disappointing results.

In case it is impossible to secure serum immediately and the owner decides to send the hogs to market, this may be done. The following regulations of the Bureau of Animal Industry apply to hogs affected with cholera:

(1) Hogs showing advanced, well-marked lesions of cholera are condemned outright.

(2) Hogs showing less extensive lesions are not condemned; but may be rendered into lard under prescribed conditions.

(3) Hogs that show only slight, limited lesions on post-mortem examination may be passed for food, provided the carcass is well nourished.

EXPERIENCE WITH SERUM.

Efficiency of the Serum-Only Treatment.—The owner of a Ramsey County herd that had been infected for several years had just purchased forty young pigs. Thirty-nine of these were vaccinated by one of the station veterinarians and placed in the infected pen. The fortieth pig escaped and was not vaccinated, and subsequently died from cholera, while the treated pigs remained healthy.

Delayed Vaccination Unsatisfactory.—A Hennepin County farmer whose premises had been infected for several years purchased about twenty-five young pigs and kept them on the premises for several weeks before vaccination. All were given the serum-virus treatment because there was no active cholera on the farm at the time, and the owner did not wish to rely upon the infection which the pigs might get from the infected pens. Seven pigs developed cholera at varying intervals shortly after treatment, which was administered by a veterinarian from the station. The serum used was used in other herds with no losses. The only plausible explanation for the disappointing results is that the susceptible pigs were allowed to remain too long on the infected premises without being protected by vaccination.

Checking an Outbreak of Cholera.—On an Olmsted County farm cholera broke out in a herd of ninety-three hogs. Twenty of these died before vaccination was decided upon, a week later. Upon the arrival of a station veterinarian, twenty hogs were found to be too sick to vaccinate, and the balance, fifty-three, were given the serum-only treatment. Some of these were known to be sick at the time, and the chances are that the majority were infected. Eighteen of those vaccinated subsequently died of cholera. On four adjoining farms there were ninety-

five hogs. Persons were going back and forth between these farms all the time. No cholera had yet appeared, and it was decided to give all the hogs the serum-virus treatment. This was done and *no* losses from cholera followed.

Possibilities of the Serum-Virus Method.—A Steele County herd of eighty-two hogs, all apparently in good headth at the time, although there had been cholera in all directions around the farm, was visited by a station veterinarian. The owner had been careful to close all avenues of infection as far as possible, and it appeared that he had been successful. The hogs were given the serum-virus treatment, and three developed cholera subsequently. The owner had been warned of this possibility, and was fully satisfied with the vaccination, and stated that he considered it a good investment.

Fair Results, Though Treatment was Delayed.—Cholera had been in a Rice County herd two weeks, when the owner decided to have his hogs given the serum-only treatment by the local veterinarian. Serum was administered to fifty-three hogs which still remained apparently well enough to treat. Although seventeen of these died of cholera, the owner was extremely well satisfied with the results.

What May Happen with the Serum-Only Method.—A number of hogs in Ramsey County were given serum-only treatment, without exposure to cholera at the time. The hogs were exposed later, and a few developed cholera and died about a month after treatment. The owner had been advised that this very thing might happen.

From these few cases several facts stand out very clearly.

(1) It is not advisable to purchase susceptible hogs and place them in infected pens unless protected by serum treatment.

(2) In case of an outbreak of cholera in a locality not previously infected, it is possible to check the outbreak by applying serum-only treatment to the well hogs in the infected herd and the serum-virus treatment to the hogs in neighboring herds, on adjoining farms.

(3) To secure the best results in infected herds, the serum-only treatment should be employed just as quickly as possible after the disease appears.

(4) Serum-only treatment should not be relied upon to produce a lasting immunity if the treated hogs are not exposed to cholera at the same time.

STATISTICS.—The following figures show three years' results with station serum, as far as reports are available. The Veterinary Division has had difficulty in getting these reports, and those from which these figures have been taken represent only a small part of the serum that has been sent out from the station. It is safely said that if reports were available on all serum used, the percentage of losses would be much smaller, as we have found that farmers will more readily report unsatisfactory results than good results attending the use of serum.

The station has adopted the following plan for securing the results of serum treatment. An accurate record is kept of all serum sent out, *i. e.*, to whom sent, when, how much, laboratory number of serum, etc. At the time the serum is administered, the veterinarian makes out a report of the work, stating the number of hogs treated, their condition, weights, amount of serum used, owner's name, address, history of the outbreak, number of hogs that have died and the number too sick to treat. One month after treatment the Veterinary Division sends out a reply postal, asking for a report on the results—especially the number of hogs that died of cholera within four weeks after treatment.

We take this opportunity to impress on all the importance of reporting these results. We like to know if our serum is producing good results in the field. If not, we attempt to determine the cause. In reporting deaths following treatment, only deaths from cholera should be reported. We have known of instances in which hogs were reported as having died from cholera, subsequent to the administration of serum, while investigation showed they had died of some other disease.

Condition of Herd.	Treatment.	Hogs Treated.	Loss from Cholera.	
			Number.	Per Cent.
Infected at time of treatment.....	Serum-only	2528	511	20.2
	Serum-virus ...	423	65	15.4
Healthy at time of treatment.....	Serum-only	2413	2	0.0
	Serum-virus ...	2841	65	2.3
	Pen exposure ..	690	10	1.4
	All methods ...	8895	653	7.3

Summary of Statistics.—It will be seen from the above figures that most of the losses following treatment were in those herds which were infected before treatment was applied. In the herds that were not infected previous to treatment, 77 deaths from cholera followed in 5,840 hogs treated by all methods, or about 1.3 per cent. Two deaths were reported in healthy herds following serum-only, but there is strong likelihood that the hogs died of something else than cholera.

NOTE.—Popular education is undoubtedly the logical method to be pursued in the prevention or eradication of contagious diseases, and the foregoing article, which is being mailed to 60,000 residents of the State of Minnesota, is surely an ideal example of popular education and one worthy of emulation.—[EDITOR.]

AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS STAND FOR TRUTH AND INTEGRITY.—These beautiful words form the opening sentence in the second paragraph of Dr. Nelson S. Mayo's letter to the Presidents of Agricultural Colleges and Directors of Experiment Stations, in connection with the report of his committee from the A. V. M. A. on advertisements of veterinary remedies. These words are beautiful because they are true, and these stations, with the confidence they enjoy, of the farmers, can certainly do a great deal in protecting them from fraudulent remedies, as Dr. Mayo has said in his letter of June 25. We desire to commend the work of this committee, as we feel that its activity has been the means of establishing a protection to the stock men; or at least in directing the Agricultural Colleges' attention to the matter in a manner that will make them feel their responsibility, and render them more alert in that direction.

SOUTHERN ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION will meet at Fillmore, August 5, 6 and 7. Secretary Hockman anticipates a large gathering.

SOME EXPERIMENTS ON MEDICAL TREATMENT OF COCCIDIOSIS IN CHICKENS.

BY K. F. MEYER AND W. J. CROCKER.

(From the Laboratory of the Pennsylvania State Live Stock Sanitary Board.)

During the months of May and June, 1912, an enzootic disease occurred in the flocks of chickens at a poultry farm near Philadelphia. Chicks from six to eight weeks of age died at the rapid rate of one hundred and fifty per day, and several old hens succumbed. Approximately eighteen hundred chicks and fifty hens were lost in from two to six weeks.

The symptoms manifested by the birds were anemia, depression, emaciation, weakness and diarrhoea. A discharge from the eyes and beak and nasal openings was occasionally seen. The stools were sometimes white in character and often greenish yellow and brown. With feathers ruffled and dejected attitude the birds went to roost, and the hens were found dead beneath the roosts the following morning. The chicks stood with the head under the wing and died in this position most frequently.

An examination of the blood revealed a marked oligocythemia, accompanied by a polymorphonuclear leucocytosis, which varied in several birds examined from 25 to 50 per cent. *Fantham*(1) noticed during his studies of coccidiosis in the grouse a polymorphonuclear leucocytosis of about 60 per cent.

Special attention was paid to another group of the adult fowls, which were kept isolated, as the owner stated, on account of "roup." These birds manifested a fibrinous conjunctivitis in one or both eyes. The head showed a marked bulging on the affected side. The space between the lids and also the nasal-lachrymal duct was filled with a yellow cheesy mass.

Usually the eyeball was forced backward and the cornea appeared gray and turbid. We observed similar cases at another

poultry farm and an attempt was made to transmit the disease to a number of healthy birds to prove whether or not the statements of *Carnwath*(2), *Uhlenhuth and Manteufel*(3) would hold good for this country. These attempts unfortunately failed.

Our attention was called to a publication by *Hadley*(4) in which for the first time it was shown that this peculiar form of conjunctivitis is a special form of coccidiosis. All the symptoms described in his paper were also found in our cases of 1912, and have recently again been recorded on several poultry farms. Based on some supplementary microscopic findings we feel justified in advancing here the statement that *Hadley's* observations of cases in Rhode Island are correct and that probably most of the cases of "roup" in the State of Pennsylvania are not due to a filtrable virus and not identical with epithelioma contagiosum, but are due to coccidia. Being familiar with "European roup" we recognized in the first cases symptomatic and anatomic differences which are explained by the etiologic features just discussed.

The morbid anatomy of over a hundred birds dead of intestinal coccidiosis and autopsied by us can be summarized as follows: The cadavera are very much emaciated and anemic. The duodenum and jejunum manifest a slight reddening of the mucous membrane and contains a yellowish green, soft viscid fecal material mixed with a catarrhal exudate. The intestinal mucous membranes are always swollen, soft and granular, showing areas of fibrin and necrosis which are easily removed.

The walls are slightly thickened and inflamed. Stasis of the urates in both ureters as a whitish material is seen in many of the cases. The liver pancreas and spleen are apparently normal. The organs of the thoracic cavity are unaltered, except in a few cases a marked degeneration of the myocardium is noted. These observations coincide with those of *Hadley*, with the exception that he found the lungs, pancreas and liver also affected. He has examined 427 cases; therefore, our number is small for comparison.

Microscopic examination of fresh smear preparations and

stained sections reveal briefly the following facts: In the intestinal contents of most of the cadavera oval double membraned bodies 15-25 m. in diameter containing fine granular substances are present in great numbers. These bodies are identified as the oocysts of the *Eimeria avium* (Hadley). In some birds these forms are either entirely absent or only found in very small numbers. Sections of the duodenum and caecum explain this fact in that the infection with coccidia is in the incipient stage and has only reached the agamogonous state of its life cycle. According to Hadley, this stage is maintained for some time before the metagamogonous sporogonous cycle appears. In chicks under one month of age he has not seen any oocysts. As our cases ranged from six to eight weeks their conditions are readily explained. Aside from these developmental stages of the oocysts most of the features of the agamogonous, progamogonous and gamogonous stages of the cycle are represented. The epithelium of the intestines is granular and in numerous instances disintegrated. Usually the agamonts and agamets seem to cause the complete destruction of the form and functions of the intestines followed by emaciation and death. The intracellular development of the agamonts and agamets of the *Eimeria* is therefore the main indirect cause of death in the same manner that characterizes other protozoic infections. Furthermore, it was demonstrated that the common practice of diagnosing coccidiosis by a simple search for the oocysts in the feces of the caeca is an inadvisable procedure when applied to diagnosis of white diarrhoea in chicks.

Specimens stained by a reliable modification of Giemsa's stain should always be examined for the parasites in the agamogonous and gamogonous stages.

Our rather incomplete study can support the very complete morphological investigations of Hadley only in so far as it concerns the main features of the life cycle. It is our object to closely follow with some protozoological details and particularly to emphasize the question whether or not all these coccidia found in animals are identical. We accept without hesita-

tion the suggestion of Hadley that they are only variations of one and the same parasite.

Great losses have been sustained by poultry raisers from this disease throughout the country and frequently requests for an efficacious medical treatment administrable through drinking water were received at the laboratory. Hence experiments with and tests of the recommended "remedies" were thought advisable. The number of these experiments is a rather small one, still the experiments allow certain conclusions, as will be shown later. On the farm the best results were obtained by simple disinfection, with no other treatment.

The experimental birds especially selected by the owner were all obtained in advanced stages of the infection from the farm upon which the outbreak occurred. They were housed for the experiment in newly built wire cages with wood floors. The entire cage could be readily taken apart and disinfected. The feed consisted of cracked corn and bread.

The following experiments have so far been concluded: *Morse*(5) has recommended the administration of castor oil with turpentine oil. This mixture was tested.

Experiment No. 1—

Lot A. Six chicks eight weeks old were given three drops daily of a mixture of equal parts oleum terebinthinæ and oleum ricini.

June 26, 1912—Treatment began.

July 1, 1912—Chick No. 1 was chloroformed and examined; oocysts were frequent in the caeca and rectum.

July 7, 1912—Chick No. 2 died.

July 15, 1912—Chick No. 3 died.

August 8, 1912—Chick No. 4 died.

August 12, 1912—Chicks Nos. 5 and 6 died.

Autopsy of the birds revealed anemia, emaciation, catarrhal enteritis, typhlitis and stasis of urates in the ureters. Coccidia were frequent in the caeca and rectum of all birds. All chicks died under this treatment in from 10 to 22 days.

Here we have a treatment sometimes recommended in coccidiosis of chickens which is conclusively proved to have no therapeutic value against well developed cases of this disease.

Booth(6) recommended pot. permanganate for the treatment of "roup." As his description of the roup cases he has treated is identical with the cases of localized coccidiosis of the conjunctival and nasal mucous membranes of the adult chicken from the farm under discussion (see above), it was considered advisable to experiment with this chemical on cases of intestinal coccidiosis.

Experiment No. 2—

Lot C. Four chicks were given KMnO_4 in drinking water. Fresh water daily was colored deep purple with a small quantity of a saturated solution of potassium permanganate.

June 27, 1912—Treatment began.

July 2, 1912—Chick No. 1 died.

July 4, 1912—Chick No. 2 died.

July 19, 1912—Chick No. 3 died.

July 22, 1912—Chick No. 4 died.

Autopsy lesions were identical with those of the birds of experiment number one coccidia were present in the caecum and rectum. All chicks died under this treatment in from five to twenty-five days.

Potassium permanganate used for the treatment of localized avian coccidiosis had absolutely no therapeutic value against intestinal coccidiosis. *Klee*(7) has treated pigeons with coccidiosis by administering a solution of iron sulphate and glycerine. An experiment was conducted to find out its value for chickens.

Experiment No. 3—

Lot D. Five chickens were given the following mixture in drinking water daily: Ferri sulphas, grams 5; glycerini puris, grams 5; aqua dist. qs. ad., c.c. 1,000.

June 27, 1912—Treatment began.

July 2, 1912—Chick No. 1 died.

July 12, 1912—Chick No. 2 died.

August 5, 1912—Chick No. 3 died.

August 6, 1912—Chick No. 4 died.

August 8, 1912—Chick No. 5 died.

Autopsy finding the same. *Coccidia* present in the caeca and rectum. All chicks died under this treatment in from 5 to 42 days.

Inasmuch as the birds usually die in from two to three weeks after becoming infected when not treated and considering that all birds were in apparently the same stage of the disease when the experiments began, we are forced to recognize a prolongation of life of approximately three weeks on the part of 50 per cent. of the birds of this experiment. Iron sulphate may be considered to have some slight value, but it is not a curative in the treatment of coccidiosis.

The Abbott Alkaloidal Company claims that a preparation placed on the market under the name of Sulphocarbolates compound to be the "best intestinal antiseptic ever devised." An experiment with this preparation was therefore considered advisable.

Experiment No. 4—

Lot G. Six chicks were given five grains of sulphocarbolates daily in the form of tablets.

July 8, 1912—Treatment began.

July 15, 1912—Chick No. 1 died.

July 19, 1912—Chicks Nos. 2 and 3 died.

July 24, 1912—Chick No. 4 died.

August 20, 1912—Chick No. 5 died.

August 28, 1912—Chick No. 6 died.

Autopsies typical. *Coccidia* present in caeca and rectum. All chicks died under this treatment in from 7 to 51 days. Two of these chicks lived practically a month longer than the course of the disease usually travels before terminating fatally. This concedes to the sulphocarbolates practically the same or perhaps a slightly greater protecting power against coccidiosis than that

of iron sulphate. From a practical point of view however, they can both be considered as little or no value as a curative.

Our attention was called by a paper of *Schultz*(8) to the antiparasitic properties of "methylenblue medicinale" in cases of oxyuris. For comparison the following experiment was carried out:

Experiment No. 5—

Lot H. Seven chicks were given one gram of methylene blue daily in the form of tablets.

July 8, 1912—Treatment began.

July 11, 1912—Chick No. 1 died.

July 12, 1912—Chick No. 2 died.

August 13, 1912—Chick No. 3 died.

August 28, 1912—Chicks Nos. 4 and 5 died.

August 30, 1912—Chick No. 6 died.

September 10, 1912—Chick No. 7 died.

The day after the treatment began the feces and feathers about the anal region were soiled with blue coloring matter. After death all birds showed coccidia in the caeca and rectum and manifested emaciation and anemia. Mucous membrane of intestinal tract were blue stained, swollen and soft. All birds died of this treatment in from 3 to 64 days.

Methylene blue prolonged the life of 57 per cent. of these birds from five to six weeks longer than they would have lived untreated, judging from the controls which died within two weeks after experimentation began on the other chicks. These chicks were all developed cases of coccidiosis when they arrived from the farm, a number having died in the crates during shipment. Methylene blue has a decided effect in this disease. It minimized the affect of the parasite and prolonged life for a time, but when used as a curative in well developed cases of coccidiosis in chicks it is a failure.

Morse also recommends the administration of calomel in doses from 0.006 to 0.1 as a successful medicament for the treatment of coccidiosis in chicks. This chemical was tested in the next experiment:

Experiment No. 6—

Lot B. Five chicks were given .006 grams of calomel daily up to July 22, 1912, when 1-10 gram of calomel were given.

June 27, 1912—Treatment began.

July 18, 1912—Chick No. 1 died.

July 28, 1912—Chick No. 2 died.

August 20, 1912—Chick No. 3 died.

August 29, 1912—Chick No. 4 died.

September 20, 1912—Chick No. 5 died.

Autopsy findings were typical of the disease. Coccidia were found in the caeca and rectum. All chicks died in from 21 to 85 days.

Calomel succeeded in prolonging life a slightly greater length of time than methylene blue and with it may be considered to have some slight therapeutic value against this disease, but it is not capable of curing coccidiosis in chickens.

Controls to experiment No. 6, experiment No. 7, Lot B.

Five chicks were put in with the chicks of lot B which were given calomel. The control chicks were marked with fuchsin and received no medicine.

June 27, 1912—Treatment began.

July 2, 1912—Chick No. 1 died.

July 4, 1912—Chick No. 2 died.

July 7, 1912—Chick No. 3 died.

July 10, 1912—Chicks Nos. 4 and 5 died.

Autopsy showed emaciation and anemia, catarrhal enteritis and typhlitis. Oocysts were present in the caeca and rectum. All chicks died in from 5 to 13 days.

Experiment No. 8—

Lot E. *Transmission experiment.*

Four healthy chicks, about six weeks old, were purchased at a different place and fed upon the intestines of chicks that died from coccidiosis.

Medical Treatment of Chickens for Coccidiosis.

Lot.	Diseased Chicks.			Healthy chicks fed infected intestines.	Medicine.	Dose.	Method of administration.	Minimum No. days after treatment until death occurred.	Maximum No. days after treatment until death occurred.	Average.	Autopsy lesions or morbid anatomy.	Coccidia or Coccyst found in:
	Con-trol.	Used.	Cured.									
A	..	6	0	6	Oleum terebinthinae and oleum ricini. aa.	Three drops daily, Mouth.	Pipette	10	20	15	Emaciation, anemia, catarrhal enteritis and typhilitis.	Rectum and caeca.
B	..	5	0	5	Calomel. ....	.006 grams for 25 days; 1 gr. after 25 days. Mouth.	Pill and tablet.	21	85	53	Emaciation, anemia catarrhal enteritis and typhilitis.	Rectum and caeca.
B2	5	..	0	5	.....	.....	.....	5	13	9	Emaciation, anemia catarrhal enteritis and typhilitis.	Rectum and caeca.
C	..	4	0	4	KMnO ₄	Colored drinking water. Deep purple. As drinking water.	Drinking water. Drinking water.	5	25	15	Emaciation, anemia catarrhal enteritis and typhilitis.	Rectum and caeca.
D	..	5	0	5	Ferri sulphas 5 gm.; glycerin puris 5 gr.; aqua dist. 1000 c.c. ....	.....	.....	5	42	23.5	Emaciation, anemia catarrhal enteritis and typhilitis.	Rectum and caeca.
G	..	6	0	6	Salphocarbulates.	5 grains. Mouth	Tablets.	7	51	29	Emaciation, anemia catarrhal enteritis and typhilitis.	Rectum and caeca.
H	..	7	0	7	Methylene-blue.	1 grain.	Tablet.	3	64	33.5	Emaciation, anemia catarrhal enteritis and typhilitis.	Rectum and caeca.
E	4	Feeding infection to kill.	Intestines of one chick.	Chopped in pieces 1 in. long	15	24	19.5	Emaciation, anemia catarrhal enteritis and typhilitis.	Rectum and caeca.

July 4, 1912—Intestines fed to chicks.

July 19, 12—Chick No. 1 died.

July 24, 1912—Chick No. 2 died.

July 25, 1912—Chick No. 3 died.

July 28, 1912—Chick No. 4 died.

Occysts were demonstrable in the caeca and rectum of all chicks. Autopsy demonstrated emaciation anemia, catarrhal enteritis and typhlitis. All chicks died from the effect of eating the intestines of birds dead of coccidiosis in from 15 to 24 days.

The birds manifested the first physical signs of illness ten days after eating the intestines, which fact would approximate the incubation period of the disease. Death occurring in from 15 to 24 days after infection established the fatal course of the disease in chicks of this age as of two to three weeks duration.

Railliet and Lucet(9) and Eckhart(10) found the same incubation time from two to three weeks. The symptoms were noticed from three to six days after infection. In our cases ten days elapsed before any symptoms were apparent. The course of the disease was also the same in the transmission experiment and ended fatally in every instance.

All the controls used for example in the calomel experiment also died from five to thirteen days. The approximate length of the disease course can be estimated at fifteen days. Any prolongation of the life of the chicks has therefore to be attributed to the medical treatment.

The experiments as shown in table permit the conclusions in cases of avian coccidiosis that calomel and methylene blue are undoubtedly capable of prolonging life. Whether or not the effect of these chemicals is distinctly parasitotropic has yet to be determined. From the few observations made a specific chemotherapeutic action can, in our opinion, be excluded. The final outcome of this experiment certainly cannot be applied practically as experimental birds were kept closely confined under conditions which are rarely found on poultry farms. Furthermore, from a practical point of view medical treatment with calomel of a flock of 5,000 chicks would be an impossibility. Still encouragement is given by the experiments.

Immediately upon establishment of the diagnosis of coccidiosis in the flocks above mentioned, the following procedure was advised, adopted and subsequently enacted with great success unaided by internal medicinal treatment: Removal of all sick birds to uninfected quarters together with disinfection of the houses and premises. The roosts and floors were scrubbed, then saturated with 5 per cent. solution of Chloro-naphtholeum and 5 per cent. solution of carbolic acid alternately. The loose dirt in the runs was swept up and removed, the ground sprinkled with lime and turned under, raked and sowed to grass. All the chicks were removed to colony houses with small grass plots adjoining. When possible only boiled water was given. Three hundred chicks which were sick with coccidiosis before disinfection began died within ten days, after which no further losses occurred.

The entire endemic of avian coccidiosis was eradicated by simple isolation, cleaning and disinfection, the most dependable treatment available until the future presents more efficient parasitotropic measures.

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4. Centralblate f. Bacteriologie Bd. 36, 1910.
5. Circular 128, Bureau of Animal Industry, U. S. Dept. Agriculture, 1908.
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DR. CHARLES W. SPRINGER MARRIED.—The many friends of Dr. Charles W. Springer, of Uniontown, Pa., will be pleased to learn that he was married on April 29, last, to Miss Bessie Lee Linhart, of Pittsburgh, Pa. After the ceremony the young couple came to New York, where they spent a few days taking in the sights of the American metropolis before sailing for Cuba and the South, on May 3, returning to Uniontown after the honeymoon, which extended over about four weeks. The REVIEW congratulates Dr. Springer on this righteous step, and, having the privilege of knowing him, we congratulate Mrs. Springer also.

NOTE.—This announcement was set in type for our June issue but was in some way lost by our printers in the final make-up. For which we apologize.

PHENOL IN TREATMENT OF TETANUS.*

BY V. G. KIMBALL, V.M.D., PHILADELPHIA, PA.

Scarcely a month passes that some one of our various journals does not contain an article on the successful treatment of tetanus. Scarcely a month passes that some new line of treatment is not given the credit for the same. Years elapse between reports of the unsuccessfully treated cases. Yet, there must be a larger number of the latter, because the mortality of this disease still remains from 75 to 85 per cent. So, on an average, there must be eight fatal cases to every two cured. To be sure, some individual practitioner may have a lower percentage of mortality, but in a general consideration this statement must hold true.

Now, upon reading a report of one, two or three patients recovering under a particular line of treatment, the question naturally arises whether they would not have recovered as well with an entirely different remedy or perhaps no remedy at all. As long as the cases which die under the same treatment are not reported, no just conclusion can be reached.

In treating some disease, usually fatal, many of us are apt to become unduly elated and jump at conclusions over a few successful results with some particular drug, instead of patiently waiting for sufficient proof to establish its efficacy beyond a doubt. In presenting this paper, the same criticism is justifiable, notwithstanding it has taken two years to procure the data.

The subject in hand being the treatment of tetanus, the etiology and symptoms will be purposely omitted. They are well known by all present here. But a brief allusion to the knowledge of the action of the tetanus toxin in the body may not be

* Presented to the May meeting of the Keystone Veterinary Medical Ass'n at Philadelphia.

amiss. It is well known that the tetanus bacillus, remaining at the point of entrance, multiplies and generates an extremely powerful poison. This poison is conducted from the point of infection, mainly through the nerve channels, but also through the lymph and blood stream, to the central nervous system and produces a general intoxication of the body. The nerve cells, for which the toxin shows a special affinity, soon become saturated. Often, in a badly infected case, more toxin is elaborated than can be taken up by the cells, and the free receptors given off by the cells. This we call the uncombined or free toxin.

Speaking of badly infected cases, brings to mind the difference in cases. There seem to be two kinds, mild and severe. The mild, possessing great powers of resistance or being infected with an organism of low potency, will recover under ordinary favorable circumstances, with or without treatment; providing medication, if employed, be of a harmless nature. The severe are almost invariably fatal, and it is this form which gives the practitioner the greatest concern.

In considering the treatment, three lines of action should be followed: First, disinfection of the point of entrance, local treatment; second, eliminating or neutralizing the free toxin; third, checking the effect of the combined toxin, *i. e.*, treating the symptoms. Local treatment cannot be performed in most cases, because the point of infection is so often unknown. Eliminating or neutralizing the free toxin is very difficult and would seem to be best affected by the use of antitoxin, the only known specific antidote which unites with and destroys the toxin in circulation or in process of elaboration. The use of antitoxin as a therapeutic agent, however, is still a debatable subject and might well be considered by itself. Therefore, with the exception of the second line of action as a possible factor, in the majority of cases, we are left only one path to follow, *viz.*, treating the symptoms. Of all the symptoms, the two most important are hyperæsthesia and spasms, the latter being greatly aggravated by the former. In holding these somewhat in check, the effect of environment is of well-known primary importance. All known

antispasmodics have been tried with no very satisfactory results. Gelsemium, lobelia, morphia, cannabis Indica, hydrocyanic acid, potassium bromide, chloral hydrate and others have proven ineffectual or at least of only slight value and that of a transitory duration. More recently "snake venom" has been reported as a useful antispasmodic in this disease. Further work on this line will be necessary before its efficiency is established.

Among all the various drugs employed, perhaps none have been as highly commended as phenol. It has been used subcutaneously, intravenously, per os and per rectum, besides locally, and by inhalation. Dr. J. Weiss, of Hungary, (1) used a 2 per cent. watery solution, subcutaneously, on 13 cases. The largest amount given any one case was only 12 grams. From these experiments, he concluded that phenol is a specific against the tetanus toxin and that it lessens reflex excitability. The peracute cases took a fatal course.

Dr. J. N. Gould, of Worthington, Minn., (2) cites one case in which he gave phenol in 50 per cent. solution, made with glycerine and alcohol, through a nasal stomach tube. Total, 25 ounces of phenol in 17 days.

Dr. S. M. Smith, of Mitchell, S. D., (3) used phenol in 25 per cent. solution with glycerine and water, subcutaneously. Four ounces were given twice daily over a period of 3 to 8 days, depending upon the severity of the case. Ten ounces of phenol was the average amount given each case.

Dr. J. Metes (4) is reported to have successfully treated one case by inhalations of phenol. Two per cent. solutions of phenol were employed for fifteen minutes, three times daily.

Dr. P. Szanto (5) had a recovery of four out of five cases treated with phenol as follows: 20 to 40 c.c. of a 2 per cent. solution, subcutaneously; one liter of a one-half per cent. solution, per rectum; and inhalations. The frequency and length of time of treatment was not stated, nor was any reference made to the type of cases treated.

The intravenous method of administration has not been used very extensively, hence there is a scarcity of literature on this

subject. With a view of determining the value of phenol in the treatment of tetanus, the following ten experiments were conducted:

Exp. No. 1. Mild case. 1,100 lb. horse. Point of infection unknown. Deglutition possible throughout attack. Phenol 5 per cent solution one ounce, subcutaneously, twice daily for 14 days. Total, pure phenol, 11 drams. No physiological effect of medicine observed. Result: Recovered.

Exp. No. 2. Mild case. 1,000 lb. horse. Point of infection unknown. Deglutition possible throughout attack. Phenol 1 per cent. solution. Six ounces intravenously, t. i. d. for 12 days. On two occasions, while administering medicine, the patient, in a violent spasm, reared and fell over backward, but regained feet unassisted. Total, phenol, 17.25 drams. Result: Recovered.

Exp. No. 3. Mild case. 1,000 lb. horse. Point of infection, open wound on left carpus, which was treated with tr. iodine. Dysphagia. Phenol 1 per cent. solution. Six to twenty ounces, intravenously, twice daily for 7 days. Total, phenol, 9 drams. Result: Died.

Exp. No. 4. Severe case. 1,000 lb. horse. Point of infection unknown. Deglutition impossible. Phenol 1 per cent. solution. Six ounces, intravenously, t. i. d. for 4 days. Total, phenol, 7.5 drams. Result: Died.

Exp. No. 5. Severe case. 900 lb. horse. Point of infection, collar gall on neck. Treated with tr. iodine. Sick three days before treatment attempted. Phenol 1 per cent. solution. Six ounces intravenously, t. i. d. for four days. Total, phenol, 7.5 drams. Result: Gradually grew worse and was destroyed.

Exp. No. 6. Severe case. 1,500 lb. horse. Point of infection unknown. Sick three days before treatment attempted. Phenol, 2 per cent. solution. Five to fourteen ounces, intravenously, once daily for 3 days. Total, phenol, 5.6 drams. Result: Died. Post mortem showed inhalation pneumonia present.

Exp. No. 7. Mild case. 1,100 lb. horse. Point of infection unknown. Could eat throughout attack. Phenol 1 and 2 per

cent. solution. Six to eight ounces, intravenously, once daily for 9 days. Total, phenol, 7.8 drams. Result: Recovered.

Exp. No. 8. Severe case. 800 lb. horse. Point of infection unknown. Phenol 2 per cent. solution. Six to twelve ounces, intravenously, once daily for 9 days. Total, phenol, 14 drams. Spasms not relaxed, but excitability reduced to a minimum, and patient was indifferent to noise or slight stimulation. Died on twenty-first day. Post mortem showed inhalation pneumonia.

Exp. No. 9. Severe case. 1,200 lb. horse. Marked aphagia. Point of infection unknown. Phenol 3 per cent. solution. Eight to eighteen ounces, intravenously, once daily for 3 days. Fourth day, phenol 2.5 drams with absolute alcohol 12 drams, intravenously. No shock. Temperature, pulse and respirations remained normal. Fifth day, phenol 1.5 drams with absolute alcohol 8 drams, intravenously, followed by falling, dyspnoea, oedema of lungs and death in ten minutes. Total, phenol 11 drams.

Exp. No. 10. Mild case. 1,100 lb. horse. Slight dysphagia, but could eat full ration. Point of infection unknown. Sick 4 days before treatment attempted. Phenol 6 per cent. solution. One to four ounces, intravenously, t. i. d. for 4 days, when signs of intoxication (lachrymation, photophobia and dilated pupil) appeared. Total, phenol 16 drams. Result: Excitability decreased, spasms unaffected. Died on ninth day.

TECHNIQUE AND REMARKS.

Solutions of phenol were made with distilled water and were warmed before administering. Jugular furrow was shaved and disinfected. Usual antiseptic precautions taken.

The administration was facilitated by use of an improvised apparatus consisting of a one-quart, large-necked bottle, graduated in ounces on the side, with a rubber stopper, through which two pieces of glass tubing were inserted. One tube, reaching the bottom of the bottle, was connected with a piece of rubber tubing two feet long, in the end of which was a capillary trocar canula. This was used to connect with the jugular vein. The other tube reached just through the stopper and was connected with a rubber air syringe, such as is used on a milk-fever outfit.

By this arrangement the solution was injected rapidly, with little annoyance, and the amount given could be readily calculated by the graduations on bottle. The introduction of air into the circulation, whether it be harmful or not, is avoided by this method.

Occasionally a patient would become excited when only five or six ounces had been given and the next time be quiet after a fifteen-ounce dose. This accounts for the variation in dosage in the same patient on different days.

CONCLUSIONS.

1. Phenol can be given intravenously in cases of tetanus in 1 to 6 per cent. watery solution and in amounts varying from 4 to 20 ounces, three times daily, depending upon the strength of the solution.

2. A slight shock sometimes follows administration, but apparently is not as dependent upon dosage as upon the excitability of the patient. Shock is shown by dyspnoea and hyperexcitability and lasts about three minutes.

3. To be of any benefit, phenol must be given until signs of intoxication (photophobia, lachrymation and dilatation of pupil) appear. (No changes in urine were observed.)

4. Phenol is as good as, but no better than, other agents to allay excitability in tetanus.

5. In tetanus, phenol does not act as an antispasmodic, in the ordinary sense of the word. It lessens hyperexcitability and in this way lessens muscular spasms.

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MISSISSIPPI STATE VETERINARY MEDICAL ASSOCIATION will meet at the Agricultural College, Starkville, on August 29.

A PARACOLON INFECTION OF CATS.*

BY JOHN REICHEL AND E. W. MUMMA, PHILADELPHIA, PA.

Bacterial infections of cats have not been studied as thoroughly as of other animals. Only a few direct references are available in the literature.

Gaertner(1) in 1908 described a fatal disease of felines in which he isolated a gram negative, polar staining organism possessing characteristics identical with the hemorrhagic septicemia group, pathogenic for dogs, cats, rabbits, guinea pigs and white mice. The predominant post-mortem changes were widespread necrotic pneumonia, hemorrhagic fibrinous pleuritis with degenerative changes in all organs.

Boucek(2) in 1909 described an epizootic among cats presenting changes at autopsy identical with those of hemorrhagic septicemia in other animals. A bipolar organism, the *Bacterium felisepticus*, was isolated, which differed from the bacterium of Gaertner only in indol production and virulence. Its group relationship was proved by immunizing a young cat against a subsequent inoculation of *Bact. felisepticus* with the bacterium of rabbit septicemia.

McGowan(3) in 1911 described an outbreak among a series of cats used for experimental purposes exposed to distemper. A gram positive diplococcus was isolated from the nasal secretions and heart blood of the infected cats. The organism was regarded as a secondary invader following primary infection with the *Bacillus bronchisepticus*. The pathogenicity of the diplococcus was not determined for other cats or experimental animals.

* Read January 21, 1913. Thirtieth annual meeting of the Pennsylvania State Veterinary Medical Association, Harrisburg, Pa. Reprinted from published proceedings. (The Mulford Laboratories, Glenolden, Pa.)

DeJong(4) in 1911 reported a chronic, usually non-fatal streptococcic disease of cats with clinical symptoms very similar to those observed in the above-mentioned epizootic, but in no instance was a bipolar organism resembling that of Gaertner or Boucek recovered.

Hoskins in 1912, at the November meeting of the Keystone Veterinary Medical Association, read a paper entitled "Mycotic Gastro-enteritis of Cats." From the symptoms and autopsy findings the condition described is apparently closely related to the one discussed in this paper.

Early in the summer of 1912 the death of four kittens, several months old, from a litter of five, together with the mother cat attracted our attention. The kittens and cat enjoyed the freedom of an enclosure, including an area of about two acres with a laboratory building, slaughter house, and a piggery, accommodating several hundred hogs for the production of hog cholera serum. To prepare this serum it is necessary to keep hogs artificially infected with highly virulent hog cholera virus. These hogs are confined to regulation virus pens, within an enclosure to which the kittens did not have access.

Late in September a second lot comprising six apparently healthy kittens, about six weeks old, were given the freedom of the premises, and in about seven days all of them showed symptoms similar to those of the first lot, all but one dying in from three to five weeks. The remaining kitten No. 1, after apparently passing through the acute stage of the disease, was chloroformed to provide fresh material for cultures.

Early in October another healthy kitten, No. 2, about six weeks old, was added to the lot and in a few days developed similar symptoms. When moribund the kitten was chloroformed, cultures made and autopsied.

Symptoms.—The kittens developed a profuse diarrhea, accompanied by rapid and extreme emaciation with general weakness. The appetite remained good, but all food seemingly irritated the intestinal mucosa. The kittens attempted to defecate almost continually, and the small amount of feces expelled was

tinged with blood and of an offensive odor. The clinical picture presented was somewhat analogous to that of dogs with canine distemper after a muco-purulent discharge from the eyes developed. The muscles of the abdomen were tense, causing an arching of the back. The hair changed to a dull ruffled and matted coat. The diarrhea and weakness progressed until death.

As the infection apparently occurred through the gastrointestinal tract, the diet of the kittens is of special interest. From September 9th, the time of the arrival of the second lot, the food consisted of bread and milk, considerable quantities of cooked meat and a small amount of raw meat, from hogs with acute hog cholera. The kittens were all too young to forage for themselves and food actually fed was probably the only food consumed.

Autopsy Findings.—Kittens No. 1 and No. 2, although killed, revealed changes similar but less marked than the kittens that died. The changes may be summarized as follows: Marked decrease in the amount of subcutaneous and intramuscular fat; serous membranes decidedly pale; mucous membrane of the entire alimentary canal pale, swollen and easily scraped from the basement membrane, especially in the region of the ileum; Peyer's patches were distinctly swollen near the ileocecal valve; mesenteric lymph glands greatly swollen, soft and edematous; liver slightly swollen, surface mottled red and yellow, capsule easily removed, parenchyma soft and friable; spleen swollen, pulp dark in color, Malpighian bodies clearly visible. Other organs presented no macroscopic changes.

Before the autopsy of kitten No. 1 was completed cultures were made from the heart blood and spleen on plain agar, blood agar, glycerine agar, Löffler's blood serum and in plain bouillon. Material from the liver, kidneys, duodenum, jejunum, ileum and rectum, was plated on blood agar.

Kitten No. 2 was autopsied and cultured same as kitten No. 1. Additional cultures were made from the mesenteric glands.

After twenty-four hours incubation at 37° C. the cultures from kitten No. 1 showed growths from the heart blood and

spleen in pure cultures of an organism with the following characteristics: In bouillon a luxuriant growth with media uniformly turbid; on plain neutral agar the colonies were gray in color, elevated, entire, coarsely granular, translucent, with a tendency to conjugate; Löffler's blood serum showed a glistening elevated streak along the line of inoculation, with the growth less abundant than on agar. A sweetish, disagreeable odor was noted from all the cultures, which became stronger in several days. The organism proved to be a gram negative rod, with rounded ends, proportionate average size 1×3 , nonsporogenous and actively motile.

The cultures from the intestinal tract showed the presence of a mixed flora, with the exception of the duodenum, from which a pure culture was isolated, identical with the one obtained from the heart blood and spleen. Other portions of the alimentary canal revealed:

1. An organism culturally and microscopically similar to the one described, but which was later differentiated by sugar fermentation tests as the *Bacillus acidilactici*, variety B. (5)

2. A gram negative rod uniformly smaller, which by biochemical reactions proved to be the *B. coli communis*, variety B.

3. An organism of the *Bacillus subtilis* group.

4. A gram positive rod found only in the rectum, which was not identified.

After twenty-four hours the cultures from the heart blood, mesenteric lymph glands, spleen and ilium of kitten No. 2 also showed a rapidly growing organism with colonies elevated, entire, moist, glistening, translucent, granular and demonstrable as a gram negative rod with rounded ends, nonsporogenous, and actively motile.

Cultures from the duodenum and rectum show similar colonies, but in addition a gram positive staphylococcus and an organism of the *Bacillus subtilis* group.

In summarizing the bacterial findings of the two kittens, the organisms recovered from the heart blood, spleen and duodenum of case No. 1 and from the heart blood, spleen, lymph glands

and ilium of case No. 2 are identical culturally and microscopically.

In order to determine the exact identity of the cause of the epizootic it was necessary to further study the characteristics of the bacilli isolated and for this purpose a strain from each kitten was selected and the following biochemical reaction made use of: Indol production; Voges-Proskauer reaction; (6) liquefaction of gelatin; gas production in dextrose bouillon, and the determination of the relative amounts of hydrogen and carbon dioxide formed in forty-eight hours, growth in litmus milk and in fifteen different sugars. The acidity in the sugars was recorded every twenty-four hours for six days and thereafter every forty-eight hours for eight days. The culture was titrated on the day gas productions ceased or at the time of the final reading at the end of fourteen days with the following results: Indol and Voges-Proskauer reaction negative; gas production in dextrose bouillon 48 hours, 25 per cent. hydrogen and 10 per cent. carbon dioxide; gelatine not liquefied in 35 days; litmus milk acid at first coagulation, followed by an alkaline reaction; acid and gas production in dextrose, dulcitol, maltose, mannitol and sorbitol; no gas production or acid reaction in lactose, saccharose, adonitol, inulin and dextrin.

Pathogenesis.—When isolated both strains were pathogenic for rabbits and guinea pigs in doses of 0.3 and 0.5 c.c. of a twenty-four hour old bouillon culture inoculated intraperitoneally. After three months' cultivation on artificial media both strains lost their virulence for rabbits, but killed guinea pigs and white mice in from twenty-four to forty-eight hours following intraperitoneal inoculations.

Summary.—The strains from kittens No. 1 and No. 2 are identical with the class of microorganisms included in the paracolonic, paratyphoid or hog-cholera group.

DR. HOSKINS.—This is a very interesting subject to me. Perhaps more so than to the majority of those present. Because, I take it, that most of those in rural districts do not have a great deal of feline practice. We, in the larger cities, have a great

deal of this. We have given special attention to feline practice during the last ten years.

We have had in Philadelphia numerous outbreaks of this disease during the past ten years, and I have become convinced that in many instances where large numbers of cats have died, presumably due to poisoning, it has been nothing more than outbreaks of this disease. We frequently have had to contend with these conditions and rarely saved a single one. We have also found that where a cat affected with this disease was brought in for treatment and isolated, there are no additional cases in that particular district.

In 1910 there were twenty-five cats sold from one pet animal shop in Philadelphia and twenty-three or twenty-four of them were suffering from this condition; so the disease is becoming more prevalent, and as the interest taken in felines is becoming greater and these animals are being marketed, I think it is of very great importance that more attention be paid to this disease in cats.

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- (3) McGowan—On an Epidemic among Cats, Supervening on and Simulating Distemper. *Jour. Path. and Bact.* Cambridge, 1911 and 1912, Vol. XLV, p. 257.
- (4) DeJong—Die Streptococcus der Katzen—*Centralb. f. Bakt.*, Original-Band 66, Sept., 1912, p. 281.
- (5) Jackson—*Journal of the American Health Association*. VI, No. 12, Dec., 1911, p. 930.
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THE GREATER NEW YORK FAIR AND EXPOSITION, which opens August 2 at the Empire City Park, with a large class of Percherons, Clydesdales, Shires, Belgians, Suffolks, Hackneys, Standardbred and saddle horses, and a large list of champions in beef and dairy cattle, sheep and swine, as well as poultry and pet stock, promises to be one of the biggest attractions of the year.

REPORT OF COMMITTEE APPOINTED TO EXAMINE LIMBS OF HORSES BY VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

BY T. GLENNON, W. F. HARRISON AND JAS. McDONOUGH (COMMITTEE).

The object of this committee was to examine a number of horses and report to this association what percentage of them were suffering with some abnormal condition of the limbs, brought about by overwork that was likely to cause them suffering or interfere with their usefulness, and to state what, in their opinion, is the most common cause of the conditions found, and, if possible, to suggest some way by which they may be avoided or their liability to occur lessened.

Those who have given this subject the slightest thought know that through the inability of the limbs to perform their work, at least 90 per cent. of all horses are rendered less serviceable and very many entirely unserviceable at an age when all the other organs are in a condition that will permit of their continuing with the performance of their work for a much longer time.

As veterinarians, we should determine whether these injuries to the limbs are the unavoidable results of the work necessary for the limb to perform or are they caused by the presence of some unnecessary condition that increases the work or some part of the limb by causing it to be unequally distributed?

If caused by the former, we would expect the injuries to occur in proportion to the amount of work the animal performed, and they could be avoided only by relieving him of a portion of his work.

If caused by the latter (an unequal distribution of the work) the injuries could not be accepted as signifying that the limb

was unequal to the task of performing its proportionate part of the work, but be accepted as proof positive that there exists some condition that disturbs the adjustment of that part of the limb where the injuries occur, and could be avoided if the parts were adjusted by placing the limb in its proper position.

The importance of this subject can best be determined by comparing the amount of work performed by the average horse at a time when he is retired from service, or sold for a small consideration because of some condition of the limbs, at an age when all of the other organs would permit of his remaining serviceable for a much longer time.

If the working capacity of the horse can be increased 100 per cent., or even 10 per cent., by simply correcting a condition that we are responsible for, this subject is deserving of the attention of all who have to do with horses, and we should be the first to take action along those lines.

While considering this subject from a commercial and economical point of view, it would be well for us to notice the care exercised by those who manufacture mechanical devices for performing work, the care they exercise to adjust its parts in a way that will allow it to work with the least amount of friction.

What would we think of the manufacturers of locomotives if they so carelessly adjusted a few small parts as to render the entire machine useless at a time when all of the rest of the machine was in perfect working order?

The manufacturers of automobiles, our greatest competitors of to-day, are exerting every effort to adjust and strengthen their machines in a way that will allow them to render the most service at the least cost. Their success along these lines is responsible for the great number of machines performing the work of horses to-day. While they continue along those lines we sit around one-half of us scared to death watching the other half starving to death, and refuse to make a single effort to adjust the limbs of horses, and add to their value by prolonging their period of usefulness.

Let us look at it from a humane point of view. The condi-

tions that we will refer to in this report cannot be brought about, or continue to exist, without causing suffering to the animals, and while the frequency of their occurrence and the great length of time that these conditions have been allowed to exist might be reasonably referred to as proof that we have wilfully neglected our professional obligations, we ask that judgment be suspended and we be given a chance to prove that if through any act of ours the sufferings that these animals have been compelled to endure in silence for so many years can be relieved, we will do every thing within our power to relieve them.

With this purpose in mind, we have begun an investigation to determine if there exists any exciting cause over which we have control and will report to you the result of our examination of 106 horses whose ages averaged $9\frac{1}{2}$ years.

On their front limbs we found 212 abnormal conditions that were caused by those parts having performed too much work. On the hind limbs we found 216 similar conditions brought about by the same cause. In neither case are puffs included, as only conditions of the bones or those attached to the bones are referred to.

On the front limbs 45 were found on the inside of the knee, superior extremity of metacarpal, 14 on front of same region. On metacarpal, below region mentioned, 58 inside and 1 outside. Splint bone, 10 on inside. Ankles, on superior extremity of pastern bone, 32 outside and 5 inside. Pastern bone, below region mentioned, 4 inside and 9 outside.

Feet, calcified cartilages, 6 inside and 28 outside. Knee spring, 9.

On the hind limbs 199 enlargements were found on the inside of hock at the seat of spavin. There were but three horses that didn't show an abnormal condition of either joint.

On metatarsal, below region referred to, 3 inside and 1 outside. Ankle, superior extremity of pastern, 2 inside and 3 outside. Pastern, below region referred to, 5 inside and 3 outside. Coronet, none.

One hundred and twenty-two limbs showed some degree of knuckling.

This shows that of the 428 defects found, 414 were situated where the work of the part had been increased by the displacement of the limb in the direction of its side. The remaining 14, found on the front of the knee, were probably due to some external cause—falling or striking against the manger.

Excluding the 14 found on the front of the knee, every one was situated upon that part of the limb where the work had been increased by an abnormal change in the relation of the parts to each other.

We were fortunate in finding 42 horses in one place that had come from the farm to that stable and had performed no other work. They are delivery horses that never move faster than a jog, and most of the time on a walk, and travel about 12 miles a day. Their load, wagon included, weighs 2,200 pounds starting out, it gradually becomes less, and weighs 1,600 pounds upon its return in about eight hours.

This work could surely be performed by those horses without injury to their limbs if subjected to no more strain than is necessary for the performance of this work, yet the limbs of these 42 horses showed 160 defects that were caused by overwork.

Now what were the conditions present that could increase the work of the part to the extent of causing 160 permanent injuries? To solve this we must take into consideration the location of the injuries, and any condition that can be accepted as a cause of injury at that place.

We find that of the 160 injuries, 159 were situated on the sides of the limbs, 131 on the inside and 28 on the outside, and but a single one on the front or back.

As it is impossible to increase the work of a part of the limb without changing the relation of the parts to each other, it becomes evident that there is present some condition that allows the limbs to move in the direction of the side, thereby disturbing their proper adjustment.

As the stability of the limb is dependent upon the support provided by the hoof, we are compelled to look there for the cause.

If the injuries are caused by the displacement of the limb in the direction of the side, it surely indicates that it is given insufficient support at that place, and we recommend that no form of shoe be used that does not provide the sides of the limb with sufficient support to protect them against injury.

DR. CHARLES SIMONSON CHASE MARRIED.—The many friends of Dr. Chas. W. Chase, of Bayshore, L. I., will be pleased to learn of his marriage on June 27, 1913, to Martha Hallock Hulse, of Brooklyn, N. Y. The REVIEW expresses the sentiment of all his friends when it wishes him all the happiness that the connubial state can bring. The Alumni Association of the New York American Veterinary College honored the doctor with the presidency of that organization at its annual meeting on May 8 last, and that body now extends to him congratulations and wishes him continued happiness.

THE JOURNAL OF THE DEPARTMENT OF AGRICULTURE OF SOUTH AUSTRALIA, number 10 of volume XVI, was recently received and perused with great pleasure. This number of 123 pages contains some excellent articles; amongst others, one by a veterinarian, "The Farmer's Horse," by F. E. Place, B.V.S.C., M.R.C.V.S., whose article, "Diet, Deficiency and Disease in Livestock," appeared in the April issue of the REVIEW. Amongst other articles in this number of especial interest to veterinarians are, "The Hog Industry," "Testing Milk and Cream," "Sheep on the Farm," and "Poultry Notes."

VETERINARIANS OF IOWA HAVE PICNIC.—Dr. Hal C. Simpson, of Denison, Iowa, in a recent communication describes a picnic enjoyed by the veterinarians and their wives within auto-driving distance of Wall Lake, Lakewood, that state, on July 20. Boat riding, bathing, ball games, etc., were among the amusements. And finally, Dr. Simpson says, "eat such lunches as only a veterinarian's wife knows how to prepare and serve." This was not their first day of that sort, as we recorded a similar outing last year, and on parting they agreed to renew it next year. It surely is a splendid form of relaxation and rest.

REMARKS ON FOREGOING REPORT OF COMMITTEE.

BY JAMES McDONOUGH, MONTCLAIR, N. J.

That we may better understand the significance of the report made by your committee appointed to examine the limbs of horses, let us briefly consider the work performed by the parts of the limbs where the greater number of injuries were found.

We find that of the 428 injuries, 414 were on the sides of the limbs, 77 on the outside and 337 on the inside. From this it would appear that the inside of the limb performed more work than the outside, while if the animal is worked with the limbs in their normal position, the shoe will invariably wear the faster on the outside. This would make it appear that the greater part of the work was performed by the outside of the limb, and for that reason conflict with the report of the committee, were it not for the fact that we are considering the limbs in their normal position, while the committee was compelled to examine them as they were found.

As the work of the different regions is affected by any change that may occur in their relation to the adjoining region, we will consider what change, if any, had taken place in the limbs of the horses examined by this committee, their cause, and likely, if not unavoidable, results.

The increased wear shown upon the outside of all shoes of the horses examined would seem conclusive evidence that that side of the limb performs the most work when the foot comes in contact with the ground, and we would expect to find all injuries upon that side, as no further wear is possible after the foot comes to rest. But if from any cause the outside of the limb is deprived of the support necessary to prevent it from moving further in the direction of the most weight, it will cause the foot to rotate in that direction. This changes the relation of the

parts to each other, and results in a transfer of work from one part of the limb to the other. As the horses examined had been shod with three-calked shoes, they had all been exposed to this danger.

The ankle joint offers the least resistance to motion in the direction of the sides which allows the bones at that place to be the first to change their relation to one another with the following results:

The increased work of the ligaments on the outside, due to the fact that their presence alone now prevent the limb from collapsing.

The increased work of the inside of the bone above the ankle, as the external condyle on the inferior extremity of the metacarpal bone, has been forced apart from the glenoid cavity of the pastern bone. This causes the weight to pass from the outside of the foot through the coronary and pastern bones to the inside of the metacarpal and carpal bone. The same conditions exist in the hind limbs.

For this reason it seems evident that while the outside of the limb below the ankle is more liable to injury, the inside is not immune, as the change in the position of the limb has relieved it of only a portion of its work. There being no joint between the ankle and shoulder, or ankle and hip, that will permit of sufficient lateral motion to injure the ligaments, or allow the weight to return to the outside of the bone, injuries to the outside of the limb above the ankle should not be frequent, and would probably result from some external cause.

Now, whether it be accepted as a correct solution by your committee of the cause of the injuries found or a mere coincidence, the fact remains that of the 84 injuries found below the ankle, 69 were on the outside, and of the 330 found above the ankle, 328 were on the inside.

Cause and effect here seem to go hand in hand; they are always present, and never disguised. The foot is sure to rotate in the absence of support at the quarters. The rotation of the foot to the side is sure to disturb the adjustment of the bones

at the ankle in such a way as to increase the work of the one side below that joint, and of the opposite side above.

The report of your committee shows that of the 428 injuries found, 412 were on that part where the work had been increased by no other cause; therefore, it is not unreasonable to suppose that in the absence of this cause not one of the 412 conditions would exist.

I think the conditions shown by the report of this committee should lead to our taking some action at this meeting that will result in discouraging the further use of three-calked shoes, or any form of shoes that do not provide the sides of the limb with support equal to that furnished by the broad quarters of the unshod hoof, and considered by nature as necessary for the animal's health and comfort.

IMPORTANT A. V. M. A. NOTICE.—The wife of the president and of each of the vice-presidents are members ex-officio of the women's auxiliary committee, and are requested by that body to join them on reaching the convention city, in assisting in the entertainment of the ladies in attendance.

OHIO VETERINARIANS ENJOY VISIT TO MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.—Drs. Cliffe of Upper Sandusky, Clemmans of Grandville, Kimball of Delta, Hover of Delphos, Fulstow of Norwalk, Hilty of Toledo, Blattenberg of Lima, Kline of Wausean, Lenfestey of Lyons and Wolf of Pioneer attended the mid-summer meeting of the M. S. V. M. A. at Detroit, July 8 and 9, and were deeply impressed with the hospitality of their Michigan brothers and the excellence of the meeting in general. The second day's session was held at the Parke, Davis & Co.'s farms, where Drs. Dunphy and Wilson gave them excellent opportunities of studying the processes of making various biological preparations. Not the least enjoyable feature was a dinner under the trees in a grove a mile from the plant.

YOU ARE EXPECTED IN NEW YORK September 1. Do not forget the date.

REPORTS OF CASES.

TEN INTERESTING CASES.

By H. PRESTON HOSKINS, V.M.D., University Farm, St. Paul, Minn.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

DIAPHRAGMATIC HERNIA IN A DOG.

Subject.—Collie, male, 3 years old.

History.—Seen first time several days after having been struck by an automobile. The main symptom following the accident was vomiting. No broken bones or other injuries could be detected.

Treatment.—Prescribed gastric sedatives, accompanied by a light diet. Apparently recovery was complete in a few days. About six months later the owner arose in the morning and upon going down stairs found the dog dead. Nothing had been noticed wrong the day previous. The owner suspected poisoning and wanted an autopsy held.

Autopsy.—Diaphragmatic hernia found, with a portion of the stomach and small intestine in the thoracic cavity. Closer examination of the diaphragm revealed an old hernia, quite small. This had suddenly become larger, as there was evidence of a recent tear and consequent hemorrhage. Stasis of blood in the incarcerated organs was the direct cause of death.

INTESTINAL OBSTRUCTION DUE TO TUBERCULAR LYMPH NODE IN A CAT.

History.—Owner of a cat called at the office, stating that the cat was constipated, and wished some medicine to relieve the condition. Some laxative pills were prescribed. Several days later the client reported the death of the cat. An autopsy had evidently been held on the cat, for the client brought a "lump," which was said to have been found in the abdominal cavity, and evidently obstructing the bowel. It appeared to be one of the

mesenteric lymph nodes, and was placed in alcohol for subsequent examination.

Microscopical Examination.—Smears made from the cut section of the lymph node showed the presence of large numbers of acid fast bacilli, very probably tubercle bacilli, and closely resembling the human type of the organism. No histological examination made.

RUPTURE OF THE LIVER IN A CHICKEN.

History.—None except that the chicken was found dead in the coop one morning.

Autopsy.—Upon opening the peritoneal cavity, a large blood clot was found, the result of a rupture of the liver, about an inch in length. The gross appearance of the liver did not indicate any pathological change, other than the rupture. Other organs apparently normal.

ANASTOMOSIS OF THE SMALL INTESTINE IN A SOW.

Subject.—A grade Chester white sow, about six months old, weighing about 125 pounds.

History.—Bought at the stock-yards with a number of others and not noticed to be sick until several days afterward. Symptoms shown were anorexia, lassitude, constipation, emaciation and general cachexia. Suspected chronic cholera. Killed.

Autopsy.—The peritoneal cavity appeared to be one mass of adhesions, involving the intestines, liver, stomach, spleen and uterus. The most interesting lesion was an anastomosis of two loops of the small intestine. These two loops were connected by a section of tissue about an inch in length, through which ran a lumen, the size of a lead pencil, connecting the two parts of the bowel. It was intended to examine the connecting section histologically, to determine whether it had any of the normal structure of the small intestine, but through an error the specimen was discarded.

PERICARDITIS IN A HORSE.

Subject.—Draft gelding, weighing 1,400 pounds, six years old, in good condition.

History.—Sick several days before being seen, as owner suspected "only a case of influenza." Examination showed effusion of chest cavity. Temperature, 105. Pulse, 72, weak and thready. Respirations accelerated. Tentative diagnosis—influenza, with effusion of the chest cavity. Usual treatment was

followed by no improvement. Heart extremely weak, and edematous swellings appeared in the sternal region. Pericarditis suspected. Heart sounds barely audible. Pulse estimated as high as 112. Death on fourth day.

Autopsy.—Chest cavity filled with fluid. Pericardium enormously thickened, being almost two inches in thickness in some places. The heart showed atrophy, evidently due to pressure.

FAT NECROSIS AND PANCREATITIS IN A SHEEP.

Subject.—Five-year-old ewe.

History.—In poor condition for some time. Removed from flock for observation. Symptoms shown were anorexia, emaciation, weakness, decubitus, death.

Autopsy.—The pancreas was highly inflamed, and the omentum, kidney and heart fat showed extreme lesions of fat necrosis.

METRITIS IN A SOW WITH UNUSUAL CONDITION.

Subject.—A grade Yorkshire sow, weighing 115 pounds.

History.—Not known. Bought in stock-yards and not noticed sick until a week later. Off feed for 24 hours. Temperature, 96.6 and quite weak. Suspected chronic cholera. Killed.

Autopsy.—The uterus was chronically inflamed and upon palpation seemed to contain pieces of bone. Upon opening it, a thin milky fluid, with a rather offensive odor, flowed out. The uterus was seen to contain a large number of foetal bones. The organ was opened up through its entire length and these bones carefully removed. There were over 300 pieces of bone, teeth and hoofs, but with the exception of a few hairs all the soft tissues had been completely digested. The absence of one scapula indicated that part of the foetus had been delivered. The remainder was retained, the os had completely closed, and the resulting condition followed.

ASCITES IN A DOG DUE TO THROMBO-ENDOCARDITIS.

Subject.—Spaniel dog, 11 or 12 years old.

History.—Had been the constant companion of his owner until the latter died. Shortly afterward the dog was observed to be ailing, and would apparently tire on the least exertion. This condition went on for some time before he was presented for treatment. Examination revealed the abdominal cavity filled with fluid and greatly distended. The heart was beating tumultuously. The abdomen was tapped and about a quart of a cherry-red fluid removed. On standing, the cherry-red color disap-

peared from the upper half of the fluid, due to the settling of the erythrocytes. The patient was much relieved by the tapping, but only to be followed by the cavity filling up again. Alteratives and heart tonics prescribed. The dog was tapped about twice weekly for a month or so, the condition showing no tendency to improve. Microscopical examination of the ascitic fluid failed to show the presence of tubercle bacilli. This examination was made on account of the family history. The dog was destroyed at the request of the client.

Autopsy.—Post-mortem examination showed a thrombo-endocarditis of the aortic valves.

HEMORRHAGIC SEPTICEMIA (?) IN A HORSE.

Subject.—A 1,200-pound, young mare in good condition.

History.—One of three horses in the same stable, all sick at about the same time, and dying within a few days of each other. The first horse died very suddenly, with symptoms of stomach staggers, as nearly as could be ascertained. The others showed symptoms which closely simulated forage poisoning. The symptoms included extreme dullness at times, with no response to external stimuli, while at other times delirium was in evidence. The bowels were rather constipated, and at no time was there any rise in temperature. An autopsy was held on the second animal to die, but the examination was negative, except for a very much impacted stomach. This organ with its contents must have weighed over fifty pounds.

The most interesting examination was held on the third animal to die, death ensuing on the third or fourth day after the first appearance of symptoms. Petechial hemorrhages were seen on most of the serous membranes, especially the peritoneum surrounding the intestines and covering the abdominal parietes, including the diaphragm. A sample of the heart blood was taken and injected into the peritoneal cavity of a rabbit. Death of the rabbit followed in less than 24 hours. Cultures made from the viscera of the rabbit gave pure growths of an organism resembling the bacillus of hemorrhagic septicemia, bacillus bipolaris septicus. In view of the post-mortem findings and the bacteriological examination, a diagnosis of hemorrhagic septicemia was made.

TUBERCULOSIS IN A GUINEA HEN.

History.—A farmer had lost practically his whole flock of 300 chickens on account of tuberculosis. A guinea hen which

had been running with the flock was the sole survivor and appeared to be healthy, but a microscopical examination of smears made from fresh droppings showed the presence of large numbers of acid fast bacilli. The bird was kept under observation for over six months. No symptoms were in evidence until toward the end of this period. Gradual loss of flesh was noticeable. The bird was found dead in its cage one morning.

Autopsy.—Well-marked lesions of tuberculosis were found in the liver and intestinal lymph nodes.

TETANUS IN A STEER.*

By Dr. H. H. HAVNER, State College, Pa.

This afternoon I wish to speak to you a few minutes on "Tetanus in a Steer." When we speak of tetanus, most of the time we think of tetanus in the horse, and perhaps also of tetanus in the human family. In most of the cases that have come to my notice the animals reported were horses, asses and mules; the cases of cattle and sheep being somewhat rare.

Tetanus is usually characterized by tonic spasms of the muscles, rigidity of the body, and follows as a result of a specific wound infection by the *Bacillus tetani*. The case of tetanus in a steer that came under my observation was last summer, in July—about July 15th. We found the steer calf lying on its side, limbs extended, breathing accelerated and in an apparently stiff and rigid condition. The calf was made to rise, and the minute he got on his feet he stood in that stiff, straddled position so characteristic of the disease. In attempting to move forward, he did so with difficulty and also with a stilted gait from side to side. There was very little lateral movement of the body; seemed to move as a whole, instead of bending as in a normal condition. Furthermore, the other symptoms usually found in the horse were present; namely, the sunken and glaring appearance of the eyes with a slight protrusion of the nictitan membrane. In this particular case, while the patient was excitable to certain noises, such as snapping of the finger, he did not show the excitability that is generally present in a horse.

At this time, the only treatment that was given was that of

* Presented to the thirtieth annual meeting of the Pennsylvania State Veterinary Medical Association at Harrisburg, January, 1913. Reprinted from published proceedings.

tapping, and in addition he was given a one-half pound dose of magnesium sulphate. In opening the mouth, it was found that the jaws were not entirely fixed; however, there was that characteristic pressure of the tongue against the hard palate and more or less of a mucous covering over the tongue.

The next day, July 16, the calf still showed a stiff, straddled gait with rigid neck and loins and with marked rigidity of the back and forelegs; the head was extended, and the nose elevated a little more so than on the previous day. The temperature was 104.3 at this examination, showing a rise of three-tenths of a degree from the previous day. I had previously read an article in the Experiment Station Record stating that W. A. Dykins had reported success in treating a heifer with magnesium sulphate. The treatment outlined in this article was followed out. On this day it was found necessary to tap for gas and after tapping the patient had a more composed appearance and the breathing was much better. Epsom salts were administered in half-pound doses per orum and per rectum as well as a subcutaneous injection of a saturated solution in a 30 c.c. dose. The animal always seemed to be relieved after tapping and would apparently notice things more than previous to drawing the gas.

On July 17 it was again found necessary to tap the gas, there being practically no improvement in gait and position of limbs. His temperature was then 103.6. Just after tapping on this date, the animal suddenly became affected with severe muscular contraction of the limbs. He went down, lying stretched on his side, with limbs extended. At this time we did not think there was much hope for recovery. Morphine sulphate was injected subcutaneously in a two-grain dose. The injection of the morphine soon quieted the muscular contractions and in about forty-five minutes he raised himself slightly. Two hours afterward he was resting on his sternum and in the afternoon got on his feet. At this time the stiffness of the limbs was not so marked as on previous days.

On the next day, July 18, the calf seemed a little improved, having slightly more expression about the eyes, and after the treatment he ate a little feed and appeared to notice things. At this time he seemed to know that he was being kept away from the rest of the cattle. On the 19th, magnesia sulphate was again administered. The symptoms were practically the same. On the 21st and 23d there was not very much change in the temperature and practically no improvement in symptoms. On the

24th it was found that there was a slight improvement in the body. He was able to get around a little more easily. The muscles of the neck and back were not so stiff and rigid, and after the treatment on this day he seemed to enjoy the feed that was given him. I might say another symptom of this case was that after the gas had been removed the patient would drink quite a lot of water; a symptom more or less characteristic.

Going into the history of this case a little further back, it could be said that this calf was castrated three weeks previous to the appearance of the tetanus. We further found that he had snagged himself between the legs. Infection must have resulted from one of these wounds, but of course it could not be determined definitely from which one. The steer seemed to improve day by day, the stiffness and other symptoms gradually disappearing, so that at the present time you would not know that he had been affected.

• In cases of tetanus, we usually have a mortality in mules and horses of about seventy-two to eighty per cent. I do not wish you to infer from the report of this case that the line of treatment given is specific at all. I only give it as it came up in our work and for what it is worth. The question always arises in the treatment of tetanus as to whether we should use remedies other than anti-tetanic serum. Anti-tetanic serum is favored by some for curative purposes and has been found satisfactory in some cases. It is needless to say that the serum is always satisfactory as a preventive measure.

The calf made an uneventful recovery from the time the last treatment was administered. He has gained over two hundred pounds since his attack and at the present time is apparently in a normal state of health.

NOTE.—Following the reading of Dr. Havner's paper, Dr. N. S. Mayo stated that in Cuba tetanus is very common, and that in addition to seeing it in a large number of mules, he had seen two cases in working oxen and one case in a sheep. A large percentage of the cases in that country get well.

FRACTURE WITH REFERENCE TO A PECULIAR CASE.*

By R. S. NORTON, M.D.C., Velva, N. D.

Since the creation of animal life, man and beast alike have ever been in danger of meeting with the unwelcome accident,

* Read before the January, 1913, meeting of the North Dakota Vet. Med. Assn. at Fargo.

commonly known as fracture, and since the beginning of the scientific world, scientists have been striving to solve the problem of how to treat the various forms and attain the greatest amount of success in each case.

In speaking of fracture, before citing a peculiar case with which it was my privilege to meet, it might be well to mention a few of the different forms that are described by some of our most noted authors.

In technical language a fracture is a solution of continuity in the structure or substance of a bone.

It ranks among the most serious of the lesions to which the horse, or any other animal, can be subject.

It is always a matter of grave import, being always slow and tedious in healing, and is frequently of doubtful and unsatisfactory result.

Fractures may be: Complete or incomplete, simple, compound or comminuted.

In regard to direction they may be transverse, oblique or longitudinal.

The bone may come apart at the point of fracture, which makes it necessary to add another descriptive term: With displacement; and those words again suggest the negative, introducing the term: Without displacement.

Furthermore, a fracture may be intra-articular, extra-articular or intra-periosteal.

Merillat mentions the following intra-periosteal fractures: Fracture of the tibia and radius.

He also treats of fracture of the phalanges, especially of the os suffrageneus and os corona; fracture of the os innominatum, with reference to (1) part of the extenal angle of the ilium; (2) the whole angle of the ilium; (3) the shaft of the ilium; (4) through the acetabulum; (5) the shaft of the ischium; (6) the ischial tuberosity; and also mentions fracture implicating the pubes and ischii.

Practically every bone in the body is liable to suffer this misfortune in some form or other.

And, in my estimation, all such cases are unwelcome to the practitioner; first, by being hard to diagnose; second, being hard to treat; and third, by being hard to prognosticate.

On May 20, 1912, one of my clients presented a two-year-old gelding to me, stating that his (my client's) brother, who was not accustomed to handling horses, had undertaken to halter-break this colt and had proceeded to do so by tying a half-inch

rope around its neck; then, tying a half hitch around its upper jaw, had fastened the rope to the hind end of a wagon and started up the team.

Mr. Colt disapproved of this method of being introduced into a conquered state and showed his disapproval by throwing himself.

This aroused the temper of the driver, who thought he would force the animal into submission by dragging it, which he did, until he concluded that something had gone wrong, whereupon he called the animal's owner, who immediately brought it to me for treatment.

Upon examination I found to my surprise—and I might say displeasure—a compound fracture of the right and left premaxilla, with a small amount of displacement, beginning between the corner and lateral incisors, and extending obliquely upward and inward, and ending about two inches above the left corner incisor, including the foramen incisivum in the fractured portion.

I considered this an unusual case, as I had never met with a similar one, nor had I ever read of any.

Having been informed that it was very hard to take up the palato-labial artery, I was very cautious in regard to the prognosis; but informed the owner that the animal might bleed to death if I was not successful in tying of the artery before removing the fractured portions of the bones, which, in my judgment, was the only practical treatment.

The owner insisted that I try it at his risk. So, securing the animal in the recumbent position, I administered a local anesthetic, and with the help of my assistant began to dissect out the fractured portion of the bones, being very careful not to cut the palato-labial artery, but on gaining sight of this very much respected anatomical structure I passed a suture around it in two places about one-half inch apart, doing so by the aid of a small, full-curved needle.

After securely tying the ligatures, I severed the artery and pushed one portion of it back through the foramen incisivum; after completing this, the remaining part of the operation was very simple, as it required only careful dissection and controlling of the hemorrhage of the small arteries.

The after-treatment consisted of washing the wound with an antiseptic solution twice daily; all hay was withheld for a period of about six days, only soft food being allowed.

The wound healed perfectly, and a heavy pad of connective tissue formed, which seemed to act as does the dental pad in

cattle. The animal was perfectly able to get a good living at pasture, as long as the grass was tender, and has no trouble whatever in prehending food while in the barn.

I do not wish to convey the idea that my proficiency in this line of work enabled me to meet with success, for any one could have done equally as well, had the opportunity presented itself.

THE FALLING CAT.

By EDWIN S. RING, D.V.S., New York, N. Y.

It is a popular fallacy that a falling cat invariably lands upon its feet, sustaining no injury to itself. On June 22d I was called to a case of this kind. The cat, a fine silver Angora, while attempting to spring from one window of an apartment to another, missed its footing and fell five stories to the stone pavement below, sustaining a compound, comminuted fracture of the right ulna and radius and a comminuted fracture of the left tibia and fibula with displacement in both cases. Moreover the other legs were badly sprained and the nose and lips were severely cut and bruised.

The owners deciding that they could not bear to see the kitten suffer, I quickly chloroformed her.

NORTH DAKOTA VETERINARY MEDICAL ASSOCIATION has changed its originally advertised date of meeting in July to *August 6 and 7*. The meeting will be held in the Agricultural College, Fargo, N. D. Among the distinguished guests on that occasion is Prof. S. Sisson, of Ohio State University. An excellent meeting is anticipated.

THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY held its midsummer meeting in Jersey City, July 10, and had a most interesting and instructive session. Many veterinarians from New York and Pennsylvania dropped in as usual. The subject of horseshoeing was thoroughly discussed by such authorities as Dr. James McDonough, of Montclair, N. J., and David W. Cochran, of New York City. Dr. W. Horace Hoskins, of Philadelphia, gave a splendid address on legislative matters in his customary interesting and forceful manner. A secretary's report, including account of clinic, will be furnished in our next issue.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

BY PROF. A. LIAUTARD, M.D., V.M.

* RECTAL EXAMINATIONS [*Duncan MacLeod*].—Their importance is shown by the four following records: '1st—Aged gelding had colic, for which treatment was prescribed. The next day, as no improvement is gained, rectal examination is made and revealed a large tear, 8 inches long, involving the mucous and muscular coats, result of malicious injury. The horse died.

2d—Valuable Clydesdale has died suddenly. Post mortem exposed lesions of peritonitis, with rupture of one of the iliac veins and a puncture with a slit of the rectum extending to the anus. Again malicious injury, by a stab of hardwood roughly pushed in.

3d—Aged cart mare had colic, treated by the attendant. As rectal examination is about to be made, the vulva and perineal region are found much swollen and the mucosa of the vagina enormously swollen and with dark necrotic patches. The attendant had rubbed into the vagina coarse salt.

4th—Aged pony had severe shivering fits while at work. He is treated by an out-of-job gamekeeper. The writer is called as the animal is dying and finds at rectal examination the explanation of the condition of the case. The gamekeeper had also made the examination and forced his hand through the rectum, tearing it from its pelvic attachment.—(*Veter. Record.*)

FRACTURE IN UTERO [*Samuel H. Power*].—A foal was delivered by the writer. The head and left fore leg were protruding. Some difficulty had to be overcome to deliver the filly, which was just dead. It was then found that the difficulty in foaling had been due to a fracture of the right fore leg, at the large metacarpal bone. The fracture had occurred some time before and was fairly well healed, with the ends of the bone crossed and protruding outside the skin. The shaft of the bone was bare but perfectly solid. It was said that the mother had an attack

of colic some three months previous and also that she had received a kick some weeks previous.—(*Vet. Record.*)

SOME CLINICAL CASES [*James Gregg, M.R.C.V.S.*].—*Bleeding from the Bladder.*—Ten-year-old Irish gelding noticed passing blood, first with the urine and then after micturation. The quantity increased and was considered at about 2 quarts a day. This continued for eleven days. Ergotine gave only a little relief, when sulphate of iron was used, two drachms night and morning. This was successful, the hemorrhage gradually subsided and stopped.

Cats Poisoned with Carbon Gas.—Three out of a litter of five kittens had died. The two left were sick and subsequently died also. They all had been housed in a small greenhouse heated with an oil stove whose combustion was imperfect. Post-mortem examination gave the orange scarlet blood.

Puppy with Bone in Throat.—For four days pup had bone in the œsophagus at the entrance of the chest. With cocaine and adrenaline the dog is operated and the bone extracted by incision of the skin and tissues under. Recovery in two weeks without suture of the wound.

Another pup swallowed a lady's hat pin, with big knob on it. The dog gets stiff and unable to walk. At the angle of the jaw something is projecting—cut down, the pin makes its appearance and with difficulty removed. It was as long as the patient itself. Complete recovery.—(*Ibid.*)

ANCIENT HISTORY AND POST-MORTEM EXAMINATION [*E. Granville Haskell, M.R.C.V.S.*].—Old pony was destroyed on account of its age. His history was that he had had chronic fetid discharge from the right nostril, which remained rebellious to treatment. His teeth were examined, and the second upper molar of the right side was absent. It was reported as having been extracted. On examination of the right nasal cavity a hard bony body was found and some cartilage with rough bony pieces embedded. It was removed. Breathing, which had been difficult, was much improved after that. No further treatment was applied, and the pony was killed. On examination of the head the greater part of the right nasal cavity was found filled with pus and food material, with, almost closing the whole cavity, the second molar tooth. The anterior turbinated bone had disappeared. The edge of the posterior was still present and forming a passage for respiration. The space between the posterior turbinated and the nasal bone was filled with decomposing food and

pus. Evidently there had been communication between the mouth and the nasal cavity. Of course, the condition of the teeth remaining in the mouth was in proportion with the absence of one and the growth of the tooth opposite.—(*Veter. Journal.*)

METASTATIC CHONDROMATA IN DOG [*R. J. Foreman, M.R.C.V.S.*].—Irish terrier bitch, 11 years old, had a very heavy tumor of the posterior mammae, which was removed. It weighed over one pound, was cartilaginous and bony. Recovery followed. Six months after, the bitch had a large lump on the near side of the abdomen and a smaller one on the off side. They were moveable, painless. Iodides, arsenic, aspirine were prescribed, and a serious prognosis considered. Ovarian tumors were suspected. They increased slightly, and one day after taking food the slut died suddenly.

Post Mortem.—Large tumor of the liver and spleen were found not attached to, but in the tissue of each organ. The examination made by Prof. Wooldridge was made out, they were ossifying chondromata and probably secondary to the mammary tumor.—(*Ibid.*)

THREE INTERESTING CASES OF CANCER [*Prof. Fred. Hobday, F.R.C.V.S.*].—1st. Seven-year-old Aberdeen bitch, after a good period of health, became "out of sorts." Suspecting bowel complaint, the owner treated her, and she seemed to get over her trouble. But after a while she showed manifest effusion of the pleural cavity. Her chest was tapped three times and after each puncture seemed to have relief. She then grew thin and finally died. Carcinoma of the upper part of the left lung pressing on the blood vessels and on the œsophagus was found.

2d. Another Aberdeen bitch, 7 years, had enlarged abdomen. Ascitis diagnosed. Iodide of potassium prescribed. Paracentesis abdominis was performed a little later on; fluid being removed, large tumor was felt within the abdomen. The abdomen open, the left ovary was found as big as an orange and adherent to the spleen and stomach. The whole of uterus with both horns and ovaries were removed after the ligating of six large blood vessels. Recovery was without any trouble. The left ovary weighed 26 ounces and the right 9 grams normal size. It was carcinomatous in nature.

3d. Half-bred Persian cat, reported 15 years old. The animal is continually striking the right side of his mouth with its

paw. He had a loose tooth, which was extracted. The buccal mucosa was swollen and ulcerated. The condition of the animal grew worse. After six weeks a growth of the mouth had largely increased; the cat was destroyed, as the tumor proved to be a carcinoma.—(*Vet. Journ.*)

FRENCH REVIEW.

By PROF. A. LIAUTARD, M.D., V.M.

ÆGAGROPILUS OBSTRUCTS INCOMPLETELY THE COLON OF A HORSE [*Mr. R. Benard*].—A bay horse, aged 12 years, has had for a long time small defecations and is often taken with slight colics. Since the last four or five days these have become severe and seem rebellious to ordinary treatment. Nothing abnormal is detected by rectal exploration, except a longitudinal wound on the right side of the rectum, with bulging granulations and with an odor of gangrene. This is probably the result of rough manipulations while rectal injections were given and might explain the colics. Two doses of chloride of barium produce expulsion of small quantity of feces. Iodide of sodium is without effect. Laxative treatment is prescribed with little result. The condition remains about the same for about two weeks when the owner gives up the horse and he is destroyed. At the autopsy was found an ægagropilus obstructing the entrance of the floating colon, with lesions of congestion and gangrene of the mucus. The ægagropilus was ovoid-shaped and surrounded by an external envelope, containing inside a spheroid mass developed round a black center looking like tar.—(*Rev. Gen. de Med. Vet.*)

DIAGNOSIS OF INTESTINAL OBSTRUCTION IN CATTLE [*Mr. A. Bru*].—The symptoms of this trouble and the characteristic signs which permit a differential diagnosis with other diseases are presented by the author.

On the first day are noticed: 1. Very violent colics, which diminish after 8 or 10 hours, but do not disappear entirely. 2. Absolute anorexia, constant symptoms. 3. Complete absence of defecation or only expulsion, with violent strainings, of semi-fluid mucosities, which run along the perineum. 4. Tachycardy, that is, abnormal acceleration of the heart, 80 to 100 beatings, without raising of the temperature; general condition rather good.

Second day: Colics are dull, with temporary exacerbations; anorexia continues; constipation complete; pulse small and perhaps more accelerated than the first. General aspect not indicating severity of the case. Rectal examination revealed an empty organ, which is deviated to the right. A tumor is felt, always a little painful, of variable size, and found quite commonly "in front of the anterior straight of the pelvis." This swelling formed by the invagination—the volvulus is mobile and with no adherence to the abdominal wall.

On the third day: Death taking place between the sixth and seventh day, there is diminution of the symptoms, but constipation continues and the beatings of the heart are always accelerated and in great number.

The differential diagnosis is established as follows: In acute enteritis, there are few colics, anorexia and complications are not complete, and the pulse is not quick. In intestinal indigestion there is, eight or nine hours after the start of the disease, a very loose, abundant diarrhœa. In nephritic congestion the urine is soon reddish or bloody. Rectal examination permits the differentiation with intestinal congestion.—(*Revue Veterin.*)

CLINICAL DIAGNOSIS OF NASAL MANIFESTATIONS IN GLANDERS AND EPIZOOTIC LYMPHANGITIS [*Mr. G. Trouette*].—The lesions of epizootic lymphangitis are very similar, clinically speaking, to the symptomatic trinity of glanders, the discharge, the gland and the chancre.

In lymphangitis the discharge is much like that of glanders; it is as abundant as in acute glanders, but is not accompanied with alarming condition; there is no anorexia, no general depression, no fever. The gland is hard, bosselated, painful and adherent to the bone; it suppurates and gives ordinary pus, not oily, and of color of saffron. For the chancre it is rounded in form, raised on the pituitary, instead of being hollowed in its thickness and sometimes involving the septum nasi as in glanders. Its elevated edges are reversed outwards; they are soft and depressible to the touch. They bleed from the slightest touch and give the impression to the touch of fleshy, soft, spongy granulations. They always have a circular form. They may collapse together, but remain round and have a tendency to cicatrization without leaving the ugly cicatrices of glanders.—(*Bullet. de la Soc. Cent.*)

UNILATERAL AMYOTROPHY FOLLOWING SUPPURATION OF THE SINUSES AND TURBINATED BONES [*Mr. Cornier*].—Four

years ago this mare was operated for extraction of the fourth upper molar of the left side. Suppuration of the superior maxillary followed, which was treated by antiseptic injections without very good results. Sometimes after a curettage removed necrotic pieces of bones, and the disease extended to the left maxillary and ethmoidal turbinated. No great improvement resulted. The condition imposes another curettage and then an acute relapse became manifest, with fever and suppuration from a fistula on the internal angle of the eye. Purulent ophthalmia developed, and after a few days appeared a marked unilateral loss of flesh on the right side of the body as far as the croup, while all the other lesions had been observed on the left. The animal soon stops eating; clinical signs of encephalitis and meningitis develop; the mare is destroyed. *Post Mortem*: By a longitudinal section of the head, made a little to the left of the median line, the following lesions were found: The right side of the head is normal, turbinated, and sinuses are healthy. The vomer and the septum nasi are covered with inflamed mucosa. The left maxillary and ethmoidal turbinated form a caseous mass, almost solid, easily broken up, with a strong odor of caries. The cribriform plate of the ethmoid is cribled with foramina of various sizes, easily broken up and the cerebral chamber being open, leaves the escape of greyish white pus mixed with blood. The pus is traced within the left cerebral hemisphere, whose structure is all destroyed. The atrophy of the left cerebral hemisphere was well marked, and the light hemisphere was normal.—(*Revue Veterin.*)

ŒSOPHAGEAL FOREIGN BODY IN A DOG [*MM. L. and E. Lepinay*].—A setter slut, two years old, presented pulmonary troubles. She has dyspnœa, refused food, remains lying down and is in great pain. The history of the case was that a veterinarian has, after examination of the throat, extracted some pieces of bone. The respiration is hurried, accelerated, temperature $38^{\circ}5$. Pulse cannot be counted. Thorax is dilated on both sides. Palpation reveals pains which cannot be localized. Great dullness on percussion on the whole inferior part of the thorax. Auscultation shows pleural effusion, complicated with pneumothorax. Puncture of the chest gives blood. Death takes place the next day. *Autopsy*: Thoracic cavities full of blood. Lungs squeezed upwards. In the œsophagus a bone is found with sharp angles, which have projected not only in the mediastinum, but also in the pleural sacs. The bone was situated a little below

the bifurcation of the trachea, and two of its angles had made its way through the œsophagus.—(*Rev. of Pathol. Comparie.*)

GANGRENE FOLLOWS ŒSOPHAGEAL PERFORATION [*Capt. F. Pagnon, Army Veter.*].—A mare having hyperthermy, chills, loss of appetite, is placed under treatment. At the lower part of the left jugular groove there is an œdematous swelling, as big as the two fists. It increases so rapidly that tracheotomy is imposed. An incision of the growth exposes a putrid cavity, in which are found broken sphacelous tissues having infected odor. When the mare drinks, the water runs out through the wound, indication of the perforation of the œsophagus. The cavity is washed with oxygenated water and deep cauterization applied on the swelling. Improvement follows, but the mare has to be fed with rectal injections. Rupture of the jugular gives rise to hemorrhage, which is controlled by pressure and ligature. A second hemorrhage takes place by rupture of a branch of the carotid. This is stopped with forceps. Cicatrization goes on well but slowly. Œsophageal fistula remains for a while, but disappears by a blistering application.

After two months and a half the mare returns to work.—(*Rev. Vet. Milit.*)

TWO INTERESTING CASES OF IMMOBILITY [*MM. Rousseau and Chicon*].—In the first case a nine-year-old horse is laid up after having made a fall the day before on an insuperable obstacle. Besides numerous wounds of the body he has a stupid appearance and shows hyperexcitation at the slightest noise. Immobility was diagnosed with the assistance of the previous history of the horse. He was destroyed. The meninges were found thickened and congested. Pus existed near the pituitary gland. The right lobe of the brain, near the interlobular fissure, was softened. There were in the lateral ventricles tumors attached to the choroid plexuses. One was as big as a pigeon's egg, the other as a hen's. They were choleastomas.

In the second case, a fifteen-year-old mare had alternate periods of depression, coma followed by others of excitement; when she would rear, kick and be very fearful of noise. Killed, the lateral ventricles of the brain were found enlarged; there was softening of the left parietal circumvolution.—(*Rev. Vet. Milit.*)

BELGIAN REVIEW.

BY PROF. A. LIAUTARD, M.D., V.M.

PUSTULAR DERMITIS AND PYEMIA BY TETRAGENI IN A HORSE [*L. Mongrell, Student*].—A horse was suspected of having farcy. His temperature and respiration were normal, the pulse weak and slow, appetite good. The general condition is rather poor. There is a slight unilateral nasal discharge with little blood. On the withers, back, shoulder and neck are numerous sores of various sizes, with red edges and giving abundant oily white-yellowish suppuration. Some tumors are not yet ulcerated. A certain number of them are arranged in straight lines, as farcinous cords do. All these lesions have appeared in four days. Mallineation and inoculations to guinea pigs were negative. Examination of the pus by the microscope revealed the presence of *micrococcus tetragenus* with few staphylococci. The case was a variety of pustular dermatitis.

Treatment: Opening of the tumor not ulcerated, thorough washing and disinfecting of all with peroxide solution, and recovery seemed to go on well when the animal lost appetite, kept on getting thin and died after 16 days without having shown any fever.

Post Mortem: 1st. Rupture of the posterior aorta with internal hemorrhage in the pericardium; 2d. in the lungs, ecchymosis and metastatic abscesses of various dimensions; 3d. in the kidneys numerous abscesses in the cortical and medullary layers, the pus containing tetragenus in a pure state.—(*Annales de Med. Vet. of Bruxelles.*)

HYPERTROPHYING ENTERITIS IN THE HORSE [*Prof. E. Liénaux*].—So far this affection has only been observed in cattle. The author has had one case and calls attention to this fact that some cases of chronic diarrhœa of horses may be due to that disease, although it is much rarer in equines than in bovines.

A three-year-old horse had diarrhœa for six weeks; he was very thin, emphysematous and had fever. The urine was not albuminous and by examination the feces were found free of parasites. Tuberculine gave a temperature from 39.5 to 39.9. The horse was killed. Two lymphatic glands were found little enlarged and caseous. The coats of the cæcum and folded colon were much thicker than normal, the small intestine also, but less. The lymph glands along the cæcal and colic arteries were rather large. The mucosa of the intestines was thickened. The free

surface covered with elevations, small tumors or again patches with loss of substance and superficial ulcerations. The examination with the microscope of frottis from a lymph gland revealed the presence of the bacillus, which is found in the hypertrophying enteritis of cattle.—(*Ibid.*)

NEEDLE ELIMINATED THROUGH THE ABDOMINAL WALL IN A HORSE [*Prof. O. Navez and T. Renard*].—Half-bred mare, eight years old, had capricious appetite, but great thirst. She moans, looks at her flank, seems to have little abdominal pains. She does not lay down any more at night. She shows pain when the surcingle of the saddle is applied. She has lost her energy, her gait is modified, and backing is very difficult.

At the sterno-pubic region, back of the xyphoid cartilage there is a tumor as big as the fist, hard and painful. It is an abscess forming; and stimulating maturing applications are prescribed. Five days later, it ulcerates spontaneously, and on exploring the cavity, cleared of thin, grumelous yellowish and very offensive pus, a small stiff rod is felt, secured and extracted. It was a knitting needle, $7\frac{1}{2}$ centimeters long. Antiseptic care was followed by rapid cicatrization.—(*Ibid.*)

CONNECTICUT VETERINARY MEDICAL ASSOCIATION.—Secretary Dow announces the semi-annual meeting of the above association on August 6 at Waterbury, where a day session devoted to clinical work and an evening session given to the reading of papers and discussion of scientific subjects. Veterinarians from neighboring states are always welcome.

SHORT ON HORSES.—The army is now short at least 1,000 horses, a greater shortage than ever before existed. It has already expended \$100,000 allowed by Congress March 4 last, and, while another appropriation of \$175,000 will be available July 1, at present prices not nearly enough horses can be had to meet the need. Fortunately prices are somewhat lower than last year, ranging from \$164 to \$174, as compared with \$175 to \$180 last year. Most of the horses picked up are from the Missouri markets, of average grade, and they are being sent to Texas for the border patrol. * * *—*Washington Tribune*, July 17.

CORRESPONDENCE.

STANDING OPERATION VERSUS CASTING FOR CASTRATION OF COLTS.

HAZEL DELL, ILL., July 8, 1913.

Editor AMERICAN VETERINARY REVIEW, New York, N. Y.:

DEAR SIR.—As regards Drs. Rogers, DeVine and Merillat's discussion of the standing operation versus casting for castration of colts, allow me to add a few words. Is it not possible that the class of colts one has to deal with plays a very important part in the selection of the restraint used? As a general rule the veterinarian in a city does not castrate any where near the amount of colts that the rural veterinarian does; and, again, the colts in and close around the city, are usually halter broken and used to being handled, and are far better subjects for the standing operation than the unhandled, unbroken, half-wild country colts that the country veterinarian has to contend with. (I castrate dozens of colts each year that never have had a halter on until caught up for the operation.) As regards the examination of the inguinal region for hernias, etc., I see no reason why the examination should be postponed until the colt is recumbent. (Dr. Merillat states that such is usually the case.) By placing a twitch on the nose one can examine for hernias without any trouble. As to the dangers of casting accidents, which Dr. DeVine seems to think occur quite frequently, I will say that I have cast several hundred horses without a single accident, therefore I have never felt that the danger was very great. I use (and very much prefer) the Klotz hopple, and if proper care is used very few if any accidents will follow their use. One of the strongest points in favor of casting is the greater ease and thoroughness in which one can disinfect the scrotum. A method which I have used for several years and which has given good results is as follows: First wash scrotum with mercuric iodide soap and water until all visible dirt is removed; second, wash with 1-500 sol. bichloride; third, dry with alcohol; fourth, paint with tincture of iodine. I find that some little difficulty is encountered when one attempts the above in the standing operation. As far as speed is concerned no one will deny but that the standing operation is more expeditious; and yet Dr. De-

Vine's assertion that he can castrate (leisurely, he says) four colts standing to the operator's one cast, would seem to me that the doctor is blessed with a bit more speed than the average veterinarian. In conclusion, allow me to say that all things considered, I favor casting, especially as regards the country veterinarian.

Very truly yours,

R. F. REEDS.

CARNDUFF, SASKATCHEWAN, CAN., July 12, 1913.

Editors AMERICAN VETERINARY REVIEW, New York

DEAR SIRs—I read with considerable interest the discussion which has appeared in your valuable magazine lately concerning the standing method of castrating colts.

I feel that I should apologize for entering however slightly into a discussion between such eminent members of the profession, but castration is an operation which some of us country practitioners perform very frequently; and I think a lot of us when we start out in our profession are not as fully prepared for the performing of this very simple operation (?) as we should be, seeing that we at once come into competition with laymen who have had the advantage of years of practical experience in the art.

I have been in practice now for some nine or ten years, during which time I have castrated yearly from 100 to 150 colts, yet I learn something new about it every year, and there is still quite a bit for me to learn, I imagine.

It is some five or six years since I commenced operating on the standing animal, and I have continued to do so ever since; not because I think it the most surgical method, but simply because I can operate on a greater number of animals with very much less fatigue during the course of a day than I can if I have to cast them, added to which the standing method is usually much preferred by the owner.

Viewing the question entirely from a surgical point of view, however, leaving out of the question altogether any consideration of whether one is getting sufficient remuneration for the time and labor expended and also the predilection of the owner, I must confess I think Dr. Rogers has some grounds for his opinion concerning the standing operation. I can only speak from my own personal experience, as I never saw a colt operated upon in the standing position by anyone else, and as far as my

college experience went, I never saw one operated on in any position. Speaking then from my own experience, I can only say that the satisfactory performance of castration on the standing animal, after one has gained some dexterity from experience, depends entirely upon the animal itself and the person who is holding it. That a man may castrate a dozen colts or more, one after the other, without the least bother in any way, is perfectly true, but the next one, which probably was the pet of the bunch, will simply throw itself at every attempt to place the instrument on the chord or arch its back and exert such a powerful traction on the chord that it is only after repeated efforts and the use of considerable bad language the instrument is placed upon the chord at all, and probably only sufficiently high to remove the gland itself, leaving part of the epididymus; anyway, with the globus major and minor still in the scrotum.

It is from this I think that practically the only bad result I have had from the standing operation arises, and that is an occasional hydrocele. Whether this condition is entirely due to not severing the chord sufficiently high up or not, I am not prepared to say; but if it is, I would like some one to instruct me how to obtain invariably all the chord you want or should get with the animal standing, and every time you make the least bit of traction on the testicle either throwing itself, trying to lie down on you or taking buck jumps round the yard or barn. By casting every colt whose testicles are not well down in the scrotum, there are very few of course in which one will experience this trouble to any great extent, but every year since doing the standing operation I have had from one to three hydroceles out of 125 to 150 colts castrated.

I do not know if other operators have any trouble of a similar nature or not, or if I am the only one. If I am, I should dearly like someone to instruct me how to avoid it, as, although not a very serious condition, it is disagreeable when it does occur. The owner does not like it, and one has to perform a second operation the following year for nothing.

In conclusion, I will say that under the circumstances which prevail with me, such as having to drive from farm to farm and with the assistance of usually one other person, get hold of a colt which may never have had a halter on in its life before, and in the majority of cases does not know the rudiments of leading, and castrate the same for the sum of \$2, I certainly prefer to operate standing, wherever I happen to get hold of it, as a rule, instead of wasting an hour or so trying to get it to some spot

where it can be cast without burying it in manure or muck of some kind, and run chances of getting my head kicked off while putting on the ropes. Could I get a sufficient fee for the operation to allow the having of one or two assistants constantly with me, who could adjust the ropes and take an intelligent part in the casting and securing of the animal, I would be willing enough to secure them all, but the few which have to be cast for one cause and another during the season are quite enough for me when I have to do everything myself.

I am the more inclined to this view, as in practice the general results all round are even better than I obtained when operating entirely on the recumbent animal.

Yours respectfully,

A. A. LOCKHART.

TO EXTERMINATE COYOTES BY SLOW TORTURE PROCESS.

MARION, KANSAS, July 5, 1913.

Editor AMERICAN VETERINARY REVIEW, New York:

In a recent issue of the *Kansas City Journal* I notice a story from *Tribune*, Kansas, indicating that the veterinary profession may be asked to give its influence and aid in exterminating the Coyotes of Western Kansas by innoculating them with the mange virus. This would do the business. The dope would make the animal both helpless and hairless. By slow process of awful torture he would freeze and die. The same cruel practice would furnish convicting evidence of savage cruelty which ought to bring odium to the practitioner with greater promptness than it could possibly bring death to the victim. One mission of the veterinary surgeon is to lessen the suffering of dumb animals. He should encourage every influence whose tendency is to make him sympathetic and humane. He should avoid cruelty in fighting a pest as he does in promoting a benefaction.

Vivisection is a practice of questionable decency, but it is a virtue in comparison with this suggested cruelty, which is necessarily evil in principle, barbarous in practice and degenerating in influence.

If such savagery is to be invited, let the appeal be made to South Sea Islanders, and not to a school whose professional dignity and humane instincts ought to treat the suggestion as an insult.

S. C. FREELAND, V.S.

OBITUARY.

S. B. ANDERSON, D.V.M.

Dr. S. B. Anderson, of Elberton, Georgia, died on July 5, 1913, of spinal meningitis. Dr. Anderson graduated from the veterinary school of the Ohio State University, class of 1911, and a year later located at Elberton, where he was building up a splendid and lucrative practice. His death occurred after an illness of but two or three days, and was a great shock to the community in which he had become very popular. Dr. Anderson was the first regularly qualified veterinarian to locate in the Elberton vicinity. He was married on June 4, 1913, to Miss Lucile Vest, of that place. He was a member of the Georgia State Veterinary Association.

YOU MUST SHOW THE MAN FROM MISSOURI, and the following from a Missouri subscriber would indicate that we had, as in renewing his subscription he says: "I do not want to miss a single copy; I appreciate your efforts to keep the REVIEW up to its high standard. You have done the profession a lot of good in the past, and *deserve* the confidence and good will of the veterinarians of this country, both of which you have."

WANTS EVERY NUMBER.—A Vancouver subscriber, who has been away from home for a time, writes: "I have been much helped by articles in your valuable publication and should not like to be without it. Would be pleased if you could send me *every number* from the time it was stopped."

A BROTHER IN UTAH WRITES: "Enclosed find my subscription for another year; I can't practice in a profitable way without it."

ARMY VETERINARY DEPARTMENT.

PROBLEMS OF BROADER AND MORE EFFECTIVE LEGISLATIVE WORK OF OUR VETERINARY ASSOCIATIONS.

During the fifty years of the life of the American veterinary profession, brought to existence and consciousness by the founding of the American Veterinary Medical Association in 1863, much has happened that is of interest to the student of veterinary history. On the whole, the development of our American profession has been more swift, acute and of greater practical result in that short space of time than that of any other country with the possible exception of Japan; and it has been more extensive than was ever foreseen by the few men who that early banded together to form a small group of veterinarians for better personal acquaintance for the advance of our science and practice and for mutual legal protection.

At that period of time the conditions of veterinary practice in this country were substantially as they had been one hundred years ago or more. At least there are no authentic records to the contrary. One hundred and fifty years ago the veterinary profession of the foremost states of Europe had been recognized by the establishment of veterinary schools and by the government employ of veterinary graduates in the armies and in civil service positions. We were thus one hundred years behind at our start in America, yet our development has been so steadily that we enjoy to-day the attention of our European colleagues, who read with interest our scientific reports and applaud our methods of practice.

Veterinary science is truly international, and its application is more or less the same everywhere. Yet the veterinary profession has been moulded somewhat different in the various countries of America, Europe and Asia. That is to say, the individual members of our profession occupy a higher or lower position in public estimation according to the state of general civilization

of a country; the conditions of live stock industry; of public hygiene and sanitation; and certainly no less through influences educational, social and political.

It is in regard to the latter points that we seem to be behind the older veterinary professions of Europe. It becomes apparent to the observer abroad that we are still weak professionally in comparison to their fully developed strength; that their strength lies in a professional organization which works constantly instead of intermittently, and which is strong enough to favorably influence public opinion with regard to needed veterinary legislation.

I wish to submit a brief report of my observations on the organization, the system of work and the results of work obtained by the veterinary associations of Germany and Austria. It will set us to think and may help us to act. There is some analogy between our state veterinary associations and the provincial veterinary societies of these countries. They also have flourishing veterinary societies in several of the larger cities just as we have here. Their routine work is similar to ours, and the social end of the meetings is not forgotten. But there exists no large national veterinary association that can be compared with ours, both in number of membership and purpose of meeting. Going in a different direction, the provincial veterinary societies have provided for themselves a central body by the election of representatives prominent in veterinary affairs, which form a national veterinary council (*Deutscher Veterinary Rath*), and which is recognized by the government as an advisory board. The number of members of this veterinary board is limited. They meet irregularly, as often as called by their president, and at places chosen with reference to local emergencies or for the sake of convenience of those members able to attend at shorter notice.

The strongest feature of this small and plastic body of experienced and trusted men is that they form a *standing commission*, and one which the veterinarians of the country look up to in good faith and confidence. This spirit behind them, they can do things. The secretary of the council holds his office indefinitely, and as he is paid a living salary, he has no other occupation. His office is, therefore, not a mere side issue, but he represents to all intents and purposes a central business bureau for the veterinarians of the country, giving information on all questions pertaining to veterinary matters, private and official, legal and legislative. He performs the correspondence of the

council, and if in need of special advice, he can at any time have the opinion or decision of a resident member of the council.

German-like, the work of the National Veterinary Council has been systematically divided into an internal and an external section. The internal work consists of the correspondence with veterinary associations or individual veterinarians; of the preparation of subjects for the deliberation of the council; of distributing circulars giving the opinions rendered or actions taken by the council; and of the accounting of the fund for dependent families of deceased veterinarians. The external section comprises the work necessary to keep up proper relationship with other scientific societies, such as medical, agricultural, naturalistic associations and societies for the humane protection of animals; of close contact with the daily press for the correction of errors or for the purpose of propaganda; of preparing and submitting petitions to the government for changes in veterinary regulations that are within their resort, and of preparing and recommending new measures for the action of legislative bodies.

Such is, in brief, the large and varied program before the National Veterinary Council. What the daily work of this peculiar veterinary organization has accomplished in the way of professional improvement and progress, our colleagues abroad are very willing to tell with evident pride and satisfaction. During the last five years the following changes have been effected by legislation of parliament: An entirely new organization of the Army Veterinary Corps; a higher official standing and increased pay of veterinarians of the civil service; a stricter law against empirics and patent medicine plants; the creation of provincial veterinary boards (*Thierärzte Kammern*) for the investigation of violations of veterinary laws or breaches of ethics of veterinary officials or practitioners. The National Council has also assisted the provincial and city veterinary societies in obtaining local legislation for the improvement in the position of the veterinary inspectors of municipal abattoirs. Certainly this is much valuable legislative work successfully performed in a short time.

Of course, we too are rightly proud of the great reforms accomplished by the influence of the American Veterinary Medical Association. No one should ever forget the persistent labors of this association in behalf of higher education, preparatory and professional. It also brought to the attention of the people and of the government the need of meat hygiene and milk hygiene. But much of this excellent work could never have been successfully accomplished but for the power exerted by the Secretary

of Agriculture, advised by our Bureau of Animal Industry. To this, really our National Veterinary Department, we owe everlasting gratitude. It is strange, therefore, that it has such a name, for no more than one American citizen of ten thousand knows it to be such, nor does he know that the "inspectors" and "experts" of this bureau are American veterinary graduates. On account of this fact little has been accomplished towards popularizing American veterinary medicine. Even Mr. Root, the former Secretary of War, in opposing Huidekoper's army veterinary bill, persistently spoke in Congress of the "horse-officers of cavalry regiments" instead of army veterinarians. These small errors of distinguished persons demonstrate sufficiently that the representatives of the people are not yet acquainted with our profession; and if so, we can hardly expect that they should understand our needs or listen attentively to our recommendations. The failure of our army veterinary legislation for so many years past is largely traceable to this source of weakness. We have failed in this legislation because the American Veterinary Medical Association has no board or commission which is at work all the year around, and because it has no relationship with and no support of other bodies, scientific, benevolent or political, which could speak for us from a neutral standpoint. Our own ideas must naturally appear as self-interested. We stand isolated from the other learned professions of the country.

Not so the American Medical Association. Note that the membership of this association counts 33,000 physicians, and yet this immense body of men has found it advantageous to seek the cooperation of the Red Cross societies and of other charitable institutions with an overwhelming membership of good women in order to secure wanted army medical legislation. How well they have succeeded is continually commented upon in the army, and they are respected accordingly.

It would, therefore, be reasonable and wise to seek similar means of friendly support as those employed by our sister profession of the country. The societies for the prevention of cruelty to animals are nearest to us in ethical veterinary matters, and they are powerful institutions. But unlike in Europe, we have not coveted this relationship, and have done nothing to assist them in their laudable efforts. It would, perhaps, also be practical to adopt some of the methods so successfully used by the German Veterinary Council. The least that can be said of them is that they are businesslike.

The fifty-year mark in our profession is a good opportunity to cast overboard obsolete methods of organization and a too conservative adherence to the old order of things. Both have served their time, but "the world do move." Let us part, for instance, with the custom to elect every year new members to the important committees just when these members have been fairly instructed into the problems to be solved by them. I believe the idea that there is a substitute for every man is fallacious. We have men that cannot be replaced without the interruption of their work or without killing their work. Such would happen, if the chairman of the legislative committee, Dr. W. Horace Hoskins, would be relieved from his efficient work by a mere adherence to the provisions of the constitution of the association. He ought to stay on the committee until his work is crowned by success, and he ought to be asked to stay because he cannot be replaced. This acknowledgment will honor him and honor us.

We have all reason to rejoice at the accomplishment of the American veterinary profession during the fifty years just closing. Nevertheless, let us renew our hope and determination to create still greater things in the next fifty years to come. In a broader and more effective work of our National Veterinary Association lies our future success.

OLAF SCHWARTZKOPF.

SURGICAL AREA CUT OFF FROM BRAIN BY AMERICAN.—London, July 25.—Great interest was taken in the meeting of the British Medical Association at Brighton yesterday, when Sir Berkeley Moynihan, professor of clinical surgery in the University of Leeds, described the discovery by the American surgeon, George W. Crile, of Cleveland, of a method of anæsthesia whereby the area of operation could be shut off from the brain for several days, if necessary. "The daily Press," commenting editorially, considers that such a discovery would be one of the greatest in modern surgery.—The foregoing was clipped from the *New York Tribune* of July 25.

COST OF KEEPING HORSES.—The cost of keeping the average farm horse in the State of Minnesota is approximately \$85 a year, says a contributor to *Farm Journal*. This includes such items as feed, shelter, labor in caring for the horse, depreciation in value, shoeing and all other expenses. It is also estimated that the length of time which each horse works during the day is a little less than four hours, for a yearly average, excluding Sundays and holidays. (About the monthly cost of a small auto.)

SOCIETY MEETINGS.

JOINT MEETING OF THE CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION AND ITS SOUTHERN AUXILIARY.

The joint meeting of the above associations was held in the City of Los Angeles June 18 and 19, 1913, and proved to be the largest and most interesting ever held by the veterinarians of California.

The first session was held at the committee room of the Chamber of Commerce, June 18, 1913, at 10 a. m. In the absence of President Sparks, Vice-President Hubbell presided.

After roll-call, the secretary read the resignation of Dr. W. E. D. Morrison, which was accepted and resolutions of regret at the withdrawal of such a long and useful member were offered.

Dr. R. T. Whittlesey then read a most excellent paper on "Anesthetics," which was well discussed.

Dr. Otis A. Longley followed with a very interesting paper on "Nuclein," which brought out an active discussion which lasted until the noon hour, when an adjournment was taken until 2 p. m. to meet at the abattoir of the Houser Packing Company.

Over fifty veterinarians were present when the afternoon session opened, and felt amply repaid by the clinic of Dr. H. T. Doak, where the following pathological specimens were exhibited:

1. *Cysticercus cellulosae*—active and degenerated cysts in muscles of hind leg, heart and diaphragm (hog).
2. *Cysticercus bovis* active and degenerated cysts in masseter muscles and heart.
3. Amyloid degeneration of kidney (hog).
5. Caseous lymphadenitis in lungs, bronchial, mediastinal and preapular glands of sheep.
6. *Cysticercus tenuicollis* in caulfat of sheep.
7. Fatty necrosis in kidney of hog.
8. Actinomycosis of inferior maxilla steer, from barley beard puncture of aviolis of teeth, barley beard still in wound.
9. Cryptorchid testicles of steer.
10. Cryptorchid testicles of lamb.
11. Diverticulum of small intestines (hog).
12. Neoplastic tumor from steer.
13. Cirrhosis of liver (hog).

14. Sexual organs, hermaphrodite, hog. 15. Feet from mule foot hog with hoof on, also phalanges of mule foot hog showing solid ospedis. 16. *Distoma hepaticum* and *lanceolata* from beef liver. 17. Tubercular mesenteric lymph glands from six weeks old calf; arbiavita appearance. 18. Tubercular bronchial and mediastinal lymph glands and lungs from two months old calf. 19. *Margaropus anulatus* (Texas fever ticks). 20. *Ortheren dorus magnini* (ear tick), and internal parasites of cattle, sheep and swine too numerous to mention. A post-mortem examination of four cows that had reacted to both the intra-dermal and subcutaneous tests. In three out of the four were found extensive tubercular lesions and were condemned. One was very slight in bronchial and mesenteric lymph glands and was passed for food, the lesions being calcified and encapsulated.

One cow showed the following reaction to the subcutaneous test:

	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	A.M.	A.M.	A.M.	A.M.	A.M.
	4	5	6	7	8	9	10	11	12		1	2	3	4	5
Temperature at 9 A. M.															
before injection 100.6..	101.4	101.9	101.8	102	102.4	101.4	103.1	103.6	104	104	103.9	103.4	102.6	102	

Injected at 11 a. m. This cow showed on post-mortem one calcified and encapsulated lesion in bronchial lymph glands and one calcified and encapsulated lesion in mesenteric lymph gland and was passed for food.

One cow showed the following reaction to the subcutaneous test:

	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	P.M.	A.M.	A.M.	A.M.	A.M.	A.M.
	4	5	6	7	8	9	10	11	12		1	2	3	4	5
Temperature at 9 A. M.															
before injection 100.6..	104.5	105	104.7	104.2	104.4	103.8	103.6	102.4	102.4	101.8	101.4	100	100.1	99.8	

Injection at 11 a. m. This cow showed well marked tubercular lesions in retropharyngeal, bronchial, mediastinal, portal, mesenteric, mammary and popliteal lymph glands. Also extensive tubercular lesions in both lungs and liver; pleura and peritoneum were covered with acute milliary tubercles. This cow was condemned.

At 6:30 p. m. at the Hollenbeck Hotel forty seats were occupied at the banquet, and after justice had been done to the good things before them by the members, President Sparks called

them to order and introduced Dr. R. T. Whittlesey as toast-master.

Dr. A. E. Rishel in his usual good spirits and well chosen words welcomed the Northern members. Dr. David Fox, of Sacramento, very aptly responded for the Northern members.

Dr. John L. Tyler's toast to the Southern Auxiliary, citing its history of early struggles to its present successful standing, was most pleasing to those present. For the California State Veterinary Medical Association Dr. R. A. Archibald, of Oakland, announced that the present meeting was the twenty-fifth anniversary of the association and brought forth the records of the first meeting in San Francisco, June 13, 1888, and very entertainingly read of it and subsequent meetings. Dr. R. T. Whittlesey being the only charter member present, added to the history by giving some personal reminiscence of those days.

Dr. Keane then gave a very complete paper on "Disinfection," showing that the labels and price did not always correspond to efficiency.

Dr. Hurt made his paper on "Effects of the Internal Administration of Carbolic Acid" very interesting and practical by citing cases of its heavy and long continued dosage.

The secretary then read a telegram from Dr. A. H. Baker, with greeting from the faculty of the Chicago Veterinary College.

Dr. McKenna, secretary of C. S. V. M. A., read a letter from Dr. H. A. Spencer, of San Jose, expressing regrets for absence. It was accompanied by a poem from his pen on the "Old Vet.," which created much mirth and made the absence of his genial self more to be regretted.

It was moved by Dr. Taylor, seconded by Dr. Hubbell, the communications be made a part of the minutes, and the secretary forward answers to the writers. Carried.

Dr. Archibald, a member of the committee of the A. V. M. A. for California, presented the following resolutions on the reconstruction of that association.

RESOLUTION.

Resolved, That the California State Veterinary Medical Association and its Southern Auxiliary in joint session assembled recommend that the following changes be made in the Constitution and By-Laws of the American Veterinary Medical Association:

First.—There should be established permanent headquarters

for the A. V. M. A. containing the secretary's office, records, library and other property of the association.

Second.—The secretary should be chosen for a term of not less than five years. He should keep his office open for the transaction of association business during business hours and should give his whole time to the work of the association, publish the annual reports and all other documents requiring publication by the association.

Third.—Business matters of the association not delegated to the secretary should be delegated to a board of trustees, composed of nine members selected by the house of delegates, for a period of three years and apportioned. The trustees to be selected from each of the nine trustee districts, containing approximately equal numbers of veterinarians, and to be so apportioned that the terms of three trustees expire each year.

Fourth.—All elective offices and all general policies of the association should be chosen by the house of delegates, which should be composed of members of the A. V. M. A., one to be chosen by each state and provincial association for a period of one year.

In his remarks on the resolutions Dr. Archibald stated that California has the largest membership of any state in the A. V. M. A.

Dr. George Hart advocated the adoption of the resolution, and Dr. Tyler moved, second by Dr. Creeley, the adoption of the resolution, and that the secretary furnish Dr. George Hart a copy, that he may present it with his report to the committee of reorganization of the A. V. M. A., of which committee he is a member; carried. Dr. Keane moved, second by Dr. Phelps, that the secretary forward to *AMERICAN VETERINARY REVIEW* and the *Journal of Veterinary Medicine* a copy of the proceedings of this joint meeting; carried.

Meeting then adjourned to meet at Chamber of Commerce Thursday, June 19, at 10 a. m.

Meeting convened June 19, 1913, at 10 a. m.; Dr. G. W. Closson presiding.

Dr. R. A. Archibald being called on gave a talk on "Opsonic Therapy." As usual he made it most instructive and entertaining. He gave facts as well as fallacies of that form of treatment and a very spirited discussion followed.

Dr. David Fox's paper on "Retrospection" commanded the closest attention, it being a history of the veterinary profession

in California for the past 25 years. He blended the serious with the amusing in a most entertaining way.

The session was concluded by a paper on "Sanitation," by Dr. C. W. Brown, of San Diego. His experiences along that line gave him ample material to bring before those present to show the customs of the handlers of our food supplies, and his suggestions were well received.

Dr. Boucher moved, second by Dr. Hart, that a vote of thanks be tendered the essayists and that the secretary write a letter thanking the Hauser Packing Company for their kindness and attention; carried.

Adjourned to meet at 2 p. m. at hospital of Drs. Carr and Stevens at 816 San Pedro street.

At the clinic held at Drs. Carr and Stevens at 2 p. m., June 19, 1913, the following operations were successfully performed: Resection of peroneus tendon, Dr. W. A. Boucher; ovariectomy in mare, Dr. A. D. Hubbell; Lyford's roaring operation, Dr. W. R. Carr; ligation of splenic vein, Dr. A. D. Hubbell, and resection of flexor pedis tendon, Dr. W. R. Carr.

J. A. DELL,
Secretary.

THIRTEENTH ANNUAL MEETING OF THE SOUTH DAKOTA VETERINARY MEDICAL ASSOCIATION.

The above-named association held its thirteenth annual meeting at Mitchell, South Dakota, Tuesday and Wednesday, June 10 and 11, 1913. It was one of the best meetings in the history of the association, over seventy veterinarians being present. Thirteen veterinarians were admitted to membership. Several interesting papers were presented. Mayor Hitchcock, of Mitchell, delivered the address of welcome to the members of the association.

This association has a membership consisting of practically every graduate veterinarian in the state, and its perfect harmony is the most pleasing feature of the organization.

Despite the efforts of the legislative committee, the thirteenth session of the State Legislature passed some very objectionable laws, the principal one being the State Live-stock Sanitary Law, in which are incorporated the State Live-stock Sanitary Law, the Veterinary Practice Act, and the Stallion Registration Law, under the direction of a board consisting of five members, three

of whom must be graduate veterinarians who have had three years experience and practice in the state. One of the three graduate veterinarians must be State Veterinarian and Superintendent of the Board. The other two members may be live-stock owners.

Graduate veterinarians in this state feel that they have been unfairly dealt with when the Legislature passed an amendment making it the duty of the State Veterinarian to appoint as a Deputy State Veterinarian any person holding a license under the act of 1909 and 1911. This will include over one hundred and sixty non-graduate veterinarians, the majority of whom have no educational qualifications whatever, and by this appointment they will have full power in the sanitary control work of the state and are qualified to inspect stock leaving or entering the state.

As a result of this vicious piece of legislation, the association, at this meeting, passed a resolution, as follows:

Whereas, The members of the South Dakota Veterinary Medical Association, assembled in convention at Mitchell, S. D., on June 10 and 11, 1913, after due deliberation believe that Chapter 265 of the Session Laws of 1913 of this state is unfair and unjust to the members and all graduate veterinarians and detrimental to the live-stock industry of the state, in that it lowers the standard of the veterinary profession to such an extent that the licensed non-graduate who has no educational qualifications whatever would be empowered with the same authority in the control and eradication of contagious diseases as the graduate veterinarian; and

Whereas, The Honorable Attorney-General, Royal C. Johnson, rules that the said law is constitutional, and that the State Live-stock Sanitary Board would be compelled under the law to appoint such licensed non-graduate to the position of Deputy State Veterinarian; now, therefore, be it

Resolved, That we, the members of the South Dakota Veterinary Association, for the maintenance of our professional standing, and for the upholding of the educational standard of the veterinary profession, and for the welfare of the live-stock industry of the state, positively refuse to accept any form of commission or appointment under the said law; and be it further
erinarrians have all signed the above resolution.

C. D. TUTTLE,
J. T. MCGILVRAY,
O. W. STANLEY,
THOMAS H. HICKS,
W. H. FRENCH,

Committee.

With but very few exceptions the members and graduate veterinarians have all signed the above resolution.

By reading this resolution one will be able to quickly see where the graduate stands, and I am indeed proud to know that we have a class of veterinarians in this state who are too proud to class themselves with such deputies as will be appointed under this law. We also have a number of non-graduates who possess pride enough to not permit themselves to be classed with this bunch, and have refused to accept a deputyship under this law.

Live-stock sanitarians of other states will be informed of the conditions existing in this state, and they will not likely accept certificates of health issued by this class of deputies, and the result will be a hardship on the shipper, since many will be influenced to have their stock inspected by these deputies only to be held en route or at destination for proper inspection, and thereby paying a double inspection fee.

The following officers were elected and committees appointed for the ensuing year: President, Dr. T. H. Ruth, DeSmet; first vice-president, Dr. J. T. McGilvray, Sioux Falls; second vice-president, Dr. Foster H. Pierce, Faulkton; secretary-treasurer, Dr. S. W. Allen, Watertown, S. D.

Legislative Committee—Dr. S. W. Allen, chairman, Watertown; Dr. T. H. Hicks, Milbank, and Dr. C. D. Tuttle, Canton, S. D.

Committee on Arrangements—Dr. A. W. Austin, chairman, Madison; Dr. J. T. McGilvray, Sioux Falls; Dr. A. H. Hill, Brookings; Dr. B. H. Sayre, Brookings, and Dr. W. H. French, Redfield, S. D.

Madison, South Dakota, was chosen as the next place of meeting, the date to be fixed later.

S. W. ALLEN, Secretary.

CENTRAL NEW YORK VETERINARY MEDICAL ASSOCIATION.

The Central New York Veterinary Medical Association held its fourth annual meeting on June 26, 1913, at Syracuse, N. Y., and it proved a day full of profit and enjoyment for the members present. The following were in attendance: W. G. Hollingworth,

H. A. Turner, W. B. Switzer, F. E. York, J. A. Pendergast, J. M. Currie, J. S. Elliott, E. E. Cole, A. J. Tuxill, J. G. Hill, E. E. Dooling, Wilson Huff, Frank Morrow, W. L. Clark, A. E. Merry, E. D. Hayden, C. R. Baldwin, R. M. Weightman, A. H. Ide, J. C. Stevens, J. Vincent Townsend, E. W. Fitch, Wm. E. J. Evans, John K. Bosshart, and C. E. Morris, members of the association, and M. A. Switzer, attorney. The association was greatly honored in having present also Dr. David W. Cochran, of New York City, president of the New York State Veterinary Medical Society.

Preceding the business session, a clinic was held at the infirmary of Dr. H. A. Turner, No. 938 South Salina street. The following subjects were furnished by the Syracuse members of the association: Brown mare, suffering from quittor and an exostosis resulting therefrom, upon which unilateral plantar neurectomy was performed by Dr. Cochran, of New York. Ovariectomy by median incision and removal of ovaries by torsion was performed on a collie bitch by Dr. A. H. Ide, of Lowville. A bay gelding was next presented and Dr. Morrow, of Oneida, operated for roaring. A black gelding with contraction of the flexor tendons of the right front leg was presented and median neurectomy performed by Dr. J. C. Stevens, of Cortland. Dr. York, of Earlville, operated for roaring on a gray gelding. Another collie bitch was next presented and ovariectomy was performed by Dr. H. A. Turner. The last case was a black mare that had run the end of a broom handle through the face of the wall of a hoof and which was found to reach the pedal bone. The splinters were removed by Dr. J. A. Pendergast, of Syracuse, and an iodoform dressing applied.

Lunch was served at the infirmary at about one o'clock, following which the members adjourned to the St. Cloud Hotel, where the business session was convened at two o'clock. Dr. J. A. Pendergast, president of the association called the meeting to order and, after extending the privilege of the floor to Dr. Cochran, ordered that the roll be called. The minutes were read by the secretary and approved. Reports were presented by the president and treasurer, showing the society to be in a pleasing condition, both financially and in the matter of sustained interest and progressiveness.

Applications for membership from C. E. Morris, of Canastota, and J. K. Bosshart, of Camden, were referred to the board of censors and upon approval were favorably acted upon by the association and the applicants received into membership.

M. A. Switzer, of Fulton, New York, attorney for the association, presented the report of the prosecuting committee, setting forth existing conditions in regard to the illegal practice of the profession, showing the results of the work of the committee to date and making recommendations for future actions.

A resolution to amend the by-laws by increasing the annual dues from \$2 to \$5, for the purpose of providing necessary funds for the work of prosecuting illegal practitioners and other work, was approved and laid upon the table in accordance with the provisions of the by-laws.

The committee to draft plans for the protection of members from mal-practice suits reported a plan which was approved and laid upon the table. A provision of this plan is to have the attorney for the association defend these suits, money for which is to be provided by a fund created by the laying aside of \$1 each year by each member until \$250 has accumulated.

Drs. Pendergast, Weightman, Switzer, Dooling, Buchanan, Morrow, Evans Currie and Elliot were elected directors for the ensuing year and reported the re-election of the present officers, which are: President, Jas. A. Pendergast; vice-president, R. M. Weightman, and secretary-treasurer, W. B. Switzer.

The prosecuting committee was re-elected with all former powers and the employment of M. A. Switzer as attorney for the association was authorized to continue until further action.

A vote of thanks was extended to Drs. Dooling, Turner and Pendergast for their work in arranging the clinic and to Dr. Turner for the use of his infirmary.

As an expression of the appreciation of Dr. Cochran's interest in the association, and in recognition of his standing in the profession, he was unanimously elected to honorary membership.

The following interesting and instructive papers were presented and carefully discussed: "Scratches, a Winter Disease," Dr. David W. Cochran, New York; "Dystokia in the Bitch," by Dr. John A. McLaughlin, New York (read by the secretary); "Case Report on the Use of a Wet Antiseptic Pack in Event of Injury," Dr. A. H. Ide, Lowville; "Bloody Dysentery in Cattle," E. W. Fitch, Manlius, N. Y.

The meeting closed with a banquet at the St. Cloud Hotel at 7 p. m. All things considered, this proved the best, most enthusiastic of the meetings yet held. The association is thoroughly alive, and what is more important, progressive.

W. B. SWITZER, Secretary.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

This association met in its twelfth regular session in the rooms of the Industrial Club, Salisbury, N. C., June 24, 1913, at 4 o'clock p. m., and was called to order by the president, Dr. L. F. Koonce. In a very happy manner Hon. W. H. Woodson extended to the visiting veterinarians a hearty welcome, which at once made them feel at home in the city. This address was responded to by Dr. Koonce, president of the association.

The following members were present at this meeting: Drs. Ashcraft, Bullock, Carroll, Chrisman, Herring, Hornaday, A. C. Jones, Koonce, Parker, Petty, Renihardt, Roberts, Ragland, Spencer, Spoon and Wolfe.

The minutes of the regular meeting held in Raleigh June 25 and 26, 1912, as well as the "called" meeting of February 20, 1913, were read by the secretary and approved.

The legislative committee reported the passage of a law at the last legislative session providing a penalty for violations of the Veterinary Practice Act.

A committee consisting of Drs. Chrisman, Wood, Roberts and Ashcraft reported and the association unanimously adopted the following resolutions:

"Whereas, It hath pleased our Heavenly Father, in His wisdom, to take from our midst our beloved brother, Dr. F. S. Charter; be it

"Resolved, That we extend to his bereaved family our deepest sympathy, and that a copy of this resolution be spread upon the minutes of our association."

On motion the business session was deferred until a later hour, and an address was then delivered by Dr. A. T. Kinsley, Kansas City, Mo., on the subject, "Veterinary Education in the Future."

This address was given very close attention, and at its conclusion, by unanimous vote, the association thanked Dr. Kinsley for his presence and made him an honorary member of the association.

This was followed by a banquet at the Empire Hotel, at which short talks were made by those present, and the evening quickly passed in a round of enjoyment and good fellowship.

June 25, 1913, the following gentlemen made application for membership in the association and were duly elected: Dr. W. H. Kern, Winston-Salem, N. C.; Dr. G. C. Cress, Mt. Ulla, N. C.;

Dr. H. B. Flowe, Raleigh, N. C.; Dr. R. B. Jones, Wadesboro, N. C., and Dr. J. I. Weeks, Clinton, N. C.

The following papers were read and discussed: "History of Veterinary Practice in North Carolina," by Dr. J. W. Petty; "A Peculiar Case of Human Rabies," by Dr. R. H. Parker; "Methods of Control of Infectious Diseases of Live Stock in North Carolina," by Dr. W. G. Chrisman; "Unusual Shipping Diseases of Horses," by Dr. L. J. Herring; miscellaneous paper, by Dr. T. N. Spencer; "Diseases of Chickens," by Dr. L. F. Koonce; miscellaneous paper, by Dr. W. A. Hornaday; "Parasites of Domestic Animals in North Carolina," by Dr. G. A. Roberts; "Report of Cases," by Dr. Watt Ashcraft.

The following officers were elected by acclamation for the following year:

President, Dr. M. J. Ragland, Salisbury, N. C.

First Vice-President, Dr. R. H. Parker, Gastonia, N. C.

Second Vice-President, Dr. R. W. Wolfe, Hickory, N. C.

Secretary, Dr. J. P. Spoon, Burlington, N. C.

Treasurer, Dr. B. B. Flowe, Raleigh, N. C.

Dr. Watt Ashcraft was unanimously recommended to Governor Craig for appointment on the State Board of Examiners for the term beginning July 1, 1913.

An executive committee consisting of the officers of the association and the Board of Veterinary Medical Examiners was and is to be annually appointed. The duties of this committee shall be to make investigations as to the fitness for membership of any applicant desiring to join this association.

On motion the convention adjourned to meet in Wilson, N. C., in June, 1914.

MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.

The mid-summer meeting of the M. S. V. M. A., held at Detroit and Rochester on July 8th and 9th, was an immense success from every point of view, about two hundred and fifty attending.

On the afternoon of the 8th the meeting convened at the Hotel Griswold, where an address of welcome was made by Mayor Oscar Marx, and very ably responded to by President Gibson and Dr. Geo. Dunphy. The mayor regretted not being

able to turn the keys of the city over to the members and visitors of the association, owing to the fact that they had previously been thrown in the river, but heartily invited all present to visit the beauties of the great automobile city of the world, and wishing them a most enjoyable and profitable meeting.

Prof. W. R. J. Fowler, of the Ontario Veterinary College, in an address said it afforded him no small amount of pleasure to again meet with and shake the hand of so many of the boys he remembered as students of the O. V. C. He also congratulated the association for the large attendance so early in the session, and would like to see a gathering of this kind in Ontario.

Prof. Clinton Smith, former Dean of the M. A. C., now employed by the Government of Brazil, gave a most interesting talk on the livestock situation in Brazil. He stated that hundreds of horses die annually from the effects of the Bot-fly, and from other similar conditions. Dr. Smith returns to Brazil to organize an experiment station.

Dr. C. A. Waldron gave the history of a very peculiar case in a colt; the first symptom noticed being slight knuckling of the fore limbs; these symptoms increased until the colt practically rested upon its ankles; photographs were presented showing the condition.

A question box was provided for the presentation of cases and problems of general interest to practitioners, and many interesting questions were discussed during the afternoon, with much benefit to all present.

At three o'clock the ladies were given an automobile ride through the parks and places of interest in the city of Detroit.

In the evening at 7.30 the members, their wives and guests enjoyed a moonlight ride on the Detroit River; the weather was ideal and the trip a most enjoyable one.

On the morning of July 9th, at 8 a. m., the entire association and visitors were favored with a splendid trolley ride from Detroit to Parkdale, in cars furnished by Parke, Davis & Co. On arrival at Rochester an old-fashioned hay ride from the cars to the Biological Farm was another pleasing feature of the trip. Here an inspection of the various buildings was made, and the production of serum and antitoxin demonstrated on some of the biological horses, which was extremely interesting.

At noon the hay wagons, some ten in number, were again brought into service to convey the members from the buildings down into a most beautiful grove for luncheon, where a genuine picnic lunch was served.

President Case of the town of Rochester then addressed the association members and invited the ladies to enjoy an automobile ride through the surrounding beautiful country in automobiles provided by the courtesy of the people of Rochester.

Material for a splendid clinic had been provided in a large plaza, so that every one had a good opportunity of seeing the several operations which were performed by Drs. Fowler, Blattenburg, Fulstow, Brenton, Waldron, Hutton, Dunphy and Wilson.

Three roasters were operated upon by Drs. Blattenburg and Fowler, who also operated upon some cryptorchids; standing castration, canine and feline operations were performed by Dr. S. Brenton; oophorectomy of a cow by Dr. Waldron; cryptorchid by Dr. Fulstow; string halt operation by Dr. Blattenburg; Thyroidectomy by Drs. Dunphy and Wilson, who also demonstrated the hypnotic effects of intravenous injections of *Cannabis Americana*. Several other interesting clinical cases were enjoyed.

Briefly, it was the unanimous vote of all present that the meeting, including the clinic, was the best ever held by the Michigan Association.

In the evening the entire association returned to Detroit in a happy frame of mind, declaring the mid-summer meeting a great success.

W. AUSTIN EWALT,
Secretary.

ADDRESS DELIVERED BY DR. W. H. LYNCH AT THE
ANNUAL MEETING AND BANQUET OF THE
MAINE VETERINARY MEDICAL ASSOCIATION,
JANUARY, 1913.

Mr. Chairman, gentlemen—Mr. Chairman, you have the same effect on me as the man in the story told by Moses Breese, the well-known "doctor of sick churches," who once knew of a darky sitting at peace with himself and all creation, when his sweetheart came on the scene—she was an amazon weighing two hundred pounds—and with undisguised affection she sat in his lap and told him the old, old story for two hours. Finally she said: "Honey, am yo' tired?" "Naw," he replied; "I was tired an hour ago, now I'm only numb."

When one searches the past for the fountain source of the science of the art of healing he must go to the realms of tradition, the temples of the gods, and the wonderland of mythology. The earliest physician was Esculapius, reputed son of Apollo, and somewhat arbitrarily called the god of medicine; this designation probably arising from thaumaturgical aspects of his ministry. I will prove myself a good fellow by giving Esculapius to our brother, the practitioner of human medicine, but when I come to speak of Hippocrates, the "father of medicine," I shall unhesitatingly call him the father of veterinary medicine, for, does not his very name relate to horses? Logic is logic, as our friend, Dr. Holmes, demonstrated in his poem, anent, the deacon's "shay."

Hippocrates, born nearly twenty-four hundred years ago, was a man of the loftiest morality and highest character, and seems to have been of sufficient individuality to cast his shadow far down the aisles of time. We have the Hippocratean face; we are using in some of the medical colleges the Hippocratean oath which he regarded as an essential finish to the course of study in medicine. Did you ever stop to think how many things we are doing to-day because some man of great earnestness and force thought it well a long time ago that we should?

The temple of Epidaurus contained the gold and ivory statue of Esculapius; together with the long list of obstinate diseases cured by him. He raised Hippolytus from the dead; but we in all our large cities where our accumulating medical science focalizes into our great hospitals with their wonderful galaxy of trained scientists, have our Dr. Flexner, Dr. Carrel, Dr. Abbott and others whose names are equally well known. Side by side, equally important, goes the advance of the division of healing science that cares for the ills of the creatures who do not speak, whose health is correlated and interrelated indistinguishably with our own, since the communicability of disease from these to man is established.

There are more than two hundred million domestic creatures in the United States, not including cats, dogs and poultry. There are two thousand students in the veterinary colleges in the country. To the ninety million persons in the United States there are something like twenty-five thousand students in medical colleges.

Now and then you cannot escape from some calamity howler who declares that the veterinary profession is crippled by the increasing number of automobiles—this, too, in view of the

fact—readily proved everywhere, that the price of a horse has practically doubled in the past ten years, to say nothing of the faddish tendency to send some cherished production to the scrap heap when it no longer tickles the fancy, as is likely to be in the case of the automobile when it is superseded by other inventions.

On the other hand, the real friendship between the human and equine families has survived all the accidents of time and appears coincident with history's dawn. The ancient Egyptians probably had skilled veterinarians to care for the health of the horses of their kings. All civilized types of earlier races testify to this friendship, which seems to be congenital and will be likely to survive all incidents of invention of methods of locomotion.

Even if the horse were extinct there is plenty of work for the veterinarian. Veterinary science is comparatively young; but for its age, it has a magnificent record; and if its rate of progress is to be measured henceforward by that of the past it has a brilliant future before it.

The man who selects the profession of veterinary medicine should not be guided altogether by the profit to be derived from it because his scientific side may dispute the balance with his financial side, but rather because he has a decided taste for this work, which will then become not really work because he enjoys it. A man is likely to succeed in work which he really enjoys.

The importance of filling positions in state and civic affairs with veterinarians is too little understood generally, and it is my business and yours to point out this pertinent and pressing need in our own state of Maine.

It is just as important to have a trained veterinarian fill the position of Livestock Sanitary Commissioner as it is to have a lawyer fill the job of Attorney General. Progress in Maine has been balked and halted by antiquated and inadequate methods in dealing with disease in livestock. It is my business and yours to try to inaugurate the dawning of a new era in Maine. The only time to control disease is at its incipency. When the meat and milk supply have a thorough and systematic inspection by men who are trained along these lines, municipalities will be utilizing one of the greatest factors in controlling diseases to which the human family are subject.

Because of the education and special training of a veterinary surgeon, he is the only man qualified to pass on the diseases of animals, inspect the food supply and be represented on every Board of Health in cities and counties in the State.

UN SOUNDNESS IN STALLION BOARD WORK [*M. H. Reynolds, St. Paul, Minn.*].—The following definitions were recently adopted by the Minnesota State Veterinary Association in response to a request from the Minnesota Stallion Registration Board. It should be understood that the present Minnesota law bars stallions, showing certain specified defects. Included in this list are sidebone, spavin, and ringbone.

Our board had experienced considerable difficulty and embarrassment in its work by reason of the wide variation in the opinion of private veterinarians who, under our present law, must do most of the examining. It seemed necessary to have something in print to serve as a general guide for the board and for examining veterinarians. A special committee was therefore appointed by the President of the State Veterinary Association, Dr. M. R. Higbee, Albert Lea. After a long-drawn discussion and careful consideration, a report was made to the association containing definitions as quoted below.

It should be understood that these are not to be considered as technical definitions, or expected to serve a useful purpose anywhere excepting in Stallion Board work, operating under a law which specifies that these forms of unsoundness shall bar stallions. In this work there is no question as to whether a stallion is theoretically sound or serviceably sound, or anything else, except as to whether he has or has not a sidebone or spavin or some other defect specified in the law.

These may possibly be helpful to others having similar troubles.

Sidebone (Excluding direct results of trauma).—"Any considerable amount of ossification of the lateral cartilage easily detected, age to be considered in doubtful cases"; *i. e.*, not necessarily the entire cartilage but enough ossification so as to be rather easily detected on skilled examination."

When there is satisfactory evidence of direct injury, then sidebone so produced should not serve to bar a stallion.

For Spavin (Regardless of lameness, and excluding results of trauma).—(1) "Any unusual bony development at or near the usual seat of bone spavin involving the tarsal bones and in which either leg is plainly more prominent than the other."

(2) "Any plain, unusual bony development involving the tarsal bones of both hocks at or near the usual seat of bone spavin which in the judgment of the examining veterinarian is not a normal development for the individual animal, other articulations and bony prominences in general being taken into consid-

eration." (We sometimes find horses with peculiar developments of the bony points, which appears to be a perfectly natural conformation for the individual.)

(3) (Regardless of exostosis) "Any chronic lameness typical of bone spavin. Diagnosis in case (3) to be confirmed, in case of reasonable doubt and a valuable stallion, by a second veterinarian in consultation."

Ringbone (Excluding any plainly rachitic ringbone entirely and excluding any exostosis probably the direct result of trauma).—"Any easily detected exostosis of the phalanges."

NEWS ITEMS.

STUDY TOUR OF EUROPE FOR AMERICAN VETERINARIANS.—Just as we were closing our forms we received from our esteemed friend, Dr. Adolph Eichhorn, of the Bureau of Animal Industry, Washington, D. C., the itinerary of the *European Tour for American Veterinarians*, that the doctor is arranging for the summer of 1914, and which he will personally direct. The doctor also has associated with him, as an advisory committee, the following gentlemen, all of whom are veterinarians of America, well acquainted with American veterinarians, yet well posted in regard to the veterinary colleges, abbatoirs, stock-yards, hygienic institutions, sanitation, veterinary organizations, live stock, etc., of Europe. These gentlemen are: Dr. L. Van Es, Fargo, N. D.; Dr. Alex. Liautard, Paris, France; Dr. J. R. Mohler, Washington, D. C.; Dr. V. A. Moore, Ithaca, N. Y.; Dr. W. H. Dalrymple, Baton Rouge, La., and Dr. Paul Fischer, Columbus, Ohio. This tour, as President Mohler, of the A. V. M. A., has explained in Dr. Eichhorn's little folder, is nicely intermixed with sightseeing and professional study. It will be a relaxation to the busy American veterinarian who can avail himself of it, and at the same time, a source of education that he can get in no other way, benefiting alike the general practitioner, teacher, sanitarian and laboratorian, and finally, the climax of the tour will be the Tenth International Veterinary

Congress in London. The details of the trip will be found in the itinerary that Dr. Eichorn has so carefully prepared, but in outline is as follows: Leaving New York June 13 and reaching the following places on dates given: June 22, Antwerp; June 23, Brussels; June 25, Paris; June 29, Versailles; June 30, Bern; July 2, Interlaken; July 3, Lucerne, Rigi; July 4, Zurich; July 5, St. Gothard Pass; July 6, Milan; July 8, 9, Venice; July 10, Fiume; July 11, Mezohegyes; July 12, Budapest; July 14, Kisser-Babolna; July 15, Vienna; July 18, Dresden; July 21, Leipzig; July 22, Berlin; July 26, Hanover; July 27, Utrecht; July 29, 30, Amsterdam; July 31, Rotterdam; August 1, Leyden; August 2, Cambridge; August 3-8, London; August 9, Edinburgh; August 11, The Trossachs; August 12, Glasgow; August 13, Liverpool; August 22, due in Boston. It will be seen by this that two days are spent in Brussels, four in Paris, two in Bern, two in Milan, two in Budapest, three in Vienna, three in Dresden, four in Berlin, two in Utrecht, five in London, and two in Edinburgh, while one day each is given to each of the other places. Dr. Eichhorn and his associates have carefully studied the ground, and arranged the time in each place to the very best advantage. They have also studied economy in the regard to cost, in keeping with the immense amount of detail their itinerary includes (such, for example, as "coaching trips with rides across Loch Lomond and Loch Katrine, one of the most beautiful rural excursions in the world"), the price of the entire tour being \$505. Anyone who has not seen this little itinerary should write Dr. Eichhorn for one, as they will find it fascinating reading whether they hope to go or not.

VETERINARY SURGEON DESMOND, formerly Chief Veterinary Surgeon, Government Service, Adelaide, South Australia, now holds the important position of Principal Veterinary Officer of the Commonwealth Military Forces of the State.

G. ED. LEECH RESIGNS.—Our capable and conscientious friend Dr. G. Ed. Leech, of Winona, Minn., who has always insisted upon doing his duty to the public as dairy inspector of that commonwealth (at times at the expense of his popularity), has resigned, according to the *Winona Independent*, because he considers the laws to elastic, and the compensation insufficient. Dr. W. R. Archibald, of Lake City, has been appointed to succeed him.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
Alabama Veterinary Med. Ass'n.....	June 6-7, 1913.....	Birmingham.....	C. A. Cary, Auburn.
Alumni Ass'n. N. Y.-A. V. C.....	April, 1914.....	141 W. 54th St.....	P. K. Nichols, Port Richmond, N. Y.
American V. M. Ass'n.....	Sept. 1-2-3-4-5, 1913.	New York, N. Y.....	C. J. Marshall, Philadelphia.
Arkansas Veterinary Ass'n.....	January, 1914.....	Ft. Smith.....	J. B. Arthur, Russellville.
Ass'n Médéciale Veterinaire Française.	1st and 3d Thur. of	Lec. Room, La-	J. P. A. Houde, Montreal.
"Laval".....	each month.....	val Un'y, Mon.	H. A. Smith, Chicago, Ill.
B. A. I. Vet. In. A., Chicago.....	2d Fri. each month.....	Chicago.....	E. J. Jackson, So. Omaha.
B. A. I. Vet. In. A., So. Omaha.....	3d Mon. each month.....	S. Omaha, Neb.....	
Buchanan Co. Vet. Ass'n.....	Monthly.....	St. Joseph and vicinity.....	F. W. Caldwell, St. Joseph, Mo.
California State V. M. Ass'n.....	June 11, 1913.....	Los Angeles.....	John F. McKenna, Fresno.
Central Canada V. Ass'n.....	Feb. and July.....	Ottawa.....	A. E. James, Ottawa.
Central N. Y. Vet. Med. Ass'n.....	June and Nov.....	Syracuse.....	W. B. Switzer, Oswego.
Chicago Veterinary Society.....	2d Tues. each month.....	Chicago.....	D. M. Campbell, Chicago.
Colorado State V. M. Ass'n.....	May 28-29, 1913.....	Ft. Collins.....	I. E. Newsom, Ft. Collins.
Connecticut V. M. Ass'n.....	August 6, 1913.....	Waterbury.....	B. K. Dow, Willimantic.
Delaware State Vet. Society.....	Jan., Apl., July, Oct.....	Wilmington.....	A. S. Houchin, Newark, Del.
Essex Co. (N. J.) V. M. A.....	3d Mon. each month.....	Newark, N. J.....	J. F. Carey, East Orange, N. J.
Genesee Valley V. M. Ass'n.....	2d week, July, 1913.....	Rochester.....	J. H. Taylor, Henrietta.
Georgia State V. M. A.....	Dec. 22-23, 1913.....	Atlanta.....	P. F. Bahnsen, Americus.
V. M. A. of Geo. Wash. Un'y	2d Sat. each month.....	Wash., D. C.....	A. T. Ayers.
Hamilton Co. (Ohio) V. A.....			Louis P. Cook, Cincinnati.
Illinois State V. M. Ass'n.....	December, 1913.....	Chicago.....	L. A. Merrill, Chicago.
Indiana Veterinary Association.....	Jan. 14, 1914.....	Indianapolis.....	A. F. Nelson, Indianapolis.
Iowa Veterinary Ass'n.....	Pending.....	Pending.....	C. H. Stange, Ames.
Kansas State V. M. Ass'n.....	Pending.....	Pending.....	J. H. Burt, Manhattan.
Kentucky V. M. Ass'n.....	Oct. & Feb. each year.	Lexington.....	Robert Graham, Lexington.
Keystone V. M. Ass'n.....	2d Tues. each month.....	Philadelphia.....	Cheston M. Hoskins.
Lake Erie V. M. Association.....	Pending.....	Pending.....	Phil. H. Fulstow, Norwalk, Ohio.
Louisiana State V. M. Ass'n.....	Sept., 1913.....	Lake Charles.....	Hamlet Moore, New Orleans, La.
Maine Vet. Med. Ass'n.....	July 9, 1913.....	Belfast.....	H. B. Wescott, Portland.
Maryland State Vet. Society.....		Baltimore.....	H. H. Counselman, Sec'y.
Massachusetts Vet. Ass'n.....	4th Wed. each month.	Young's, Boston.	J. H. Seale, Salem.
Michigan State V. M. Ass'n.....	Feb. 3, 4, 1914.....	Lansing.....	W. A. Ewalt, Mt. Clemens.
Minnesota State V. M. Ass'n.....	July 9, 10, 1913.....	Albert Lea.....	G. Ed. Leech, Winona.
Mississippi State V. M. Ass'n.....	Aug. 29, 1913.....	Starkville.....	Wm. P. Ferguson, Grenada.
Missouri Valley V. Ass'n.....	June 30, July 1-2, '13.	Omaha.....	Hal. C. Simpson, Denison, Ia.
Missouri Vet. Med. Ass'n.....	July, 1913.....	Kirksville.....	S. Stewart, Kansas City.
Montana State V. M. A.....	Sept. 24, 25, 1913.....	Helena.....	A. D. Knowles, Livingston.
Nebraska V. M. Ass'n.....	1st Mo. & Tu., Dec. '13	Lincoln, Neb.....	Carl J. Norden, Nebraska City.
New York S. V. M. Soc'y.....	1st week Sept., 1913.	New York.....	J. H. Milks, Ithaca, N. Y.
North Carolina V. M. Ass'n.....	June, 1914.....	Wilson.....	J. P. Spoon, Burlington.
North Dakota V. M. Ass'n.....	Aug. 6-7, 1913.....	Fargo.....	C. H. Babcock, New Rockford.
North-Western Ohio V. M. A.....	Nov. 1913.....	Delphos.....	E. V. Hover, Delphos.
Ohio State V. M. Ass'n.....	Jan. 14, 15, 1914.....	Columbus.....	Reuben Hilty, Toledo.
Ohio Soc. of Comparative Med.....	Annually.....	Upper Sandusky.....	F. F. Sheets, Van Wert, Ohio.
Ohio Valley Vet. Med. Ass'n.....			J. C. Howard, Sullivan.
Oklahoma V. M. Ass'n.....	Fall, 1913.....	Oklahoma City.....	C. E. Steel, Oklahoma City.
Ontario Vet. Ass'n.....	1st Week in Feb. 1914	Toronto.....	L. A. Willson, Toronto.
Pennsylvania State V. M. A.....	Sept. 16, 1913.....	Not selected.....	John Reichel, Glenolden.
Philippine V. M. A.....	Call of President.....	Manila.....	David C. Kretzer, Manila.
Portland Vet. Med. Ass'n.....	4th Tues. each month.	Portland, Ore.....	Sam. B. Foster, Portland, Ore.
Province of Quebec V. M. A.....	Mon. and Que.....	Providence.....	Gustave Boyer, Rigaud, P. Q.
Rhode Island V. M. Ass'n.....	Jan. and June.....	Providence.....	J. S. Pollard, Providence.
South Carolina Ass'n of Veter'ns.....	Pending.....	Pending.....	B. K. McInnes, Charleston.
South Illinois V. M. and Surg. Ass'n.....	Aug. 5-6-7, 1913.....	Fillmore.....	F. Hockman, Iola.
St. Louis Soc. of Vet. Inspectors.....	1st Wed. fol. the 2d		
Schuykill Valley V. M. A.....	Sun. each month.....	St. Louis.....	Wm. T. Conway, St. Louis, Mo.
Soc. Vet. Alumni Univ. Penn.....	June 18, 1913.....	Reading.....	W. G. Huyett, Wernersville.
South Dakota V. M. A.....	Pending.....	Philadelphia.....	B. T. Woodward, Wash'n, D. C.
Southern Auxiliary of California State		Madison.....	S. W. Allen, Watertown.
V. M. Ass'n.....			
South St. Joseph Ass'n of Vet. Insp.....	Jan., Apl., July, Oct.....	Los Angeles.....	J. A. Dell, Los Angeles.
Tennessee Vet. Med. Ass'n.....	4th Tues. each month	407 Illinois Ave.....	H. R. Collins, South St. Joseph.
Texas V. M. Ass'n.....	November, 1913.....	Memphis.....	O. L. McMahon, Columbia.
Twin City V. M. Ass'n.....	Nov., 1913.....	College Station.....	Allen J. Foster, Marshall.
Utah Vet. Med. Ass'n.....	2d Thu. each month.....	St. P.-Minneapolis.....	S. H. Ward, St. Paul, Minn.
Vermont Vet. Med. Ass'n.....	Pending.....	Pending.....	A. J. Webb, Layton.
Veterinary Ass'n of Alberta.....			G. T. Stevenson, Burlington.
Vet. Ass'n Dist. of Columbia.....			C. H. H. Sweetapple, For. Saskat-
Vet. Ass'n of Manitoba.....	3d Wed. each month.....	514 9th St., N.W.....	chewan, Alta., Can.
Vet. Med. Ass'n of N. J.....	Feb. & July each yr.....	Winnipeg.....	M. Page Smith, Washington, D. C.
V. M. Ass'n, New York City.....	July 10, 1913.....	Jersey City.....	Wm. Hilton, Winnipeg.
Veterinary Practitioners' Club.....	1st Wed. each month.	141 W. 54th St.....	E. L. Lobelin, New Brunswick.
Virginia State V. M. Ass'n.....	Monthly.....	Jersey City.....	R. S. MacKellar, N. Y. City.
Washington State Col. V. M. A.....	July 10, 1913.....	Old Point Comf't.....	A. F. Mount, Jersey City.
Washington State V. M. A.....	1st & 3d Fri. Eve.....	Pullman.....	Geo. C. Faville, North Emporia.
Western Penn. V. M. Ass'n.....	June 19, 20, 1913.....	Pullman.....	R. J. Donohue, Pullman.
Wisconsin Soc. Vet. Grad.....	3d Thu. each month.....	Wenatchee.....	Carl Conoyer, Bellingham.
York Co. (Pa.) V. M. A.....	July 16-17, 1913.....	Pittsburgh.....	Benjamin Gunner, Sewickley.
	June, Sept., Dec., Mar.....	Milwaukee.....	J. W. Beckwith, Shalhsburg.
		York.....	E. S. Bausticker, York, Pa.

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